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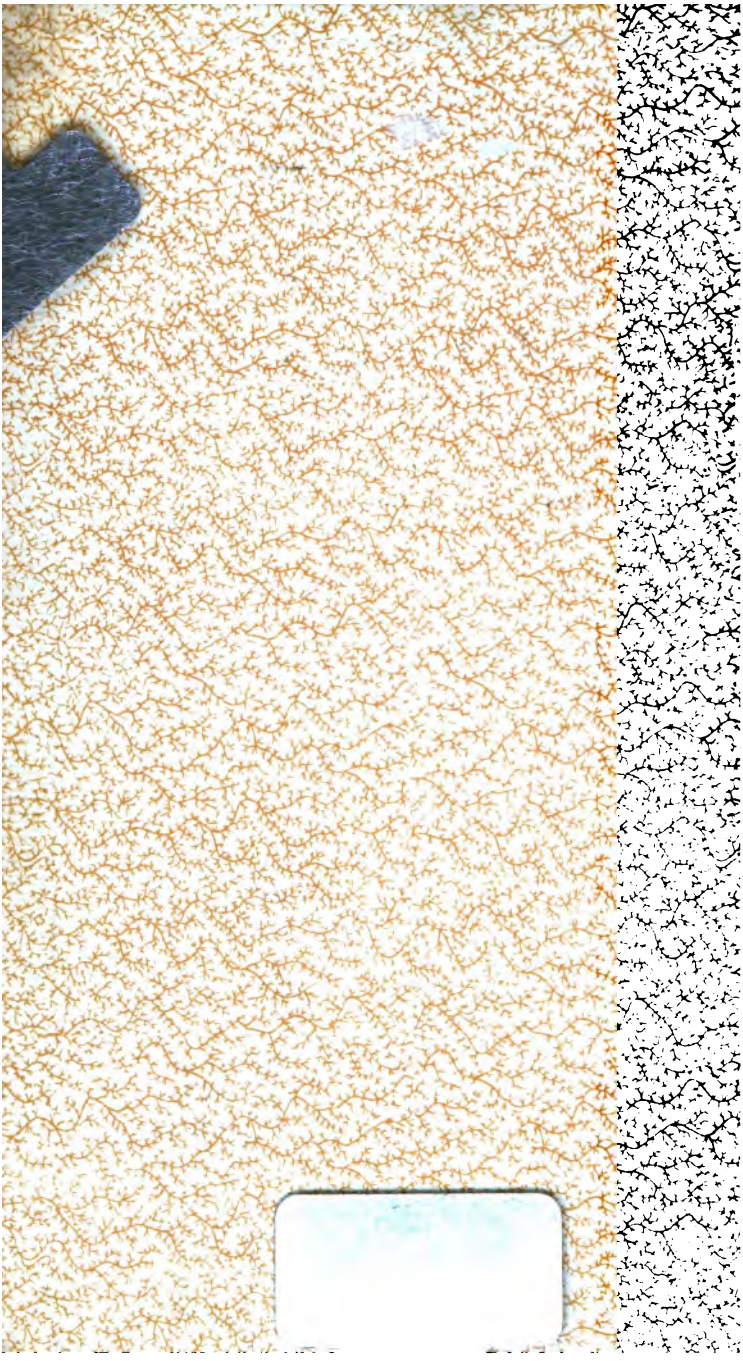

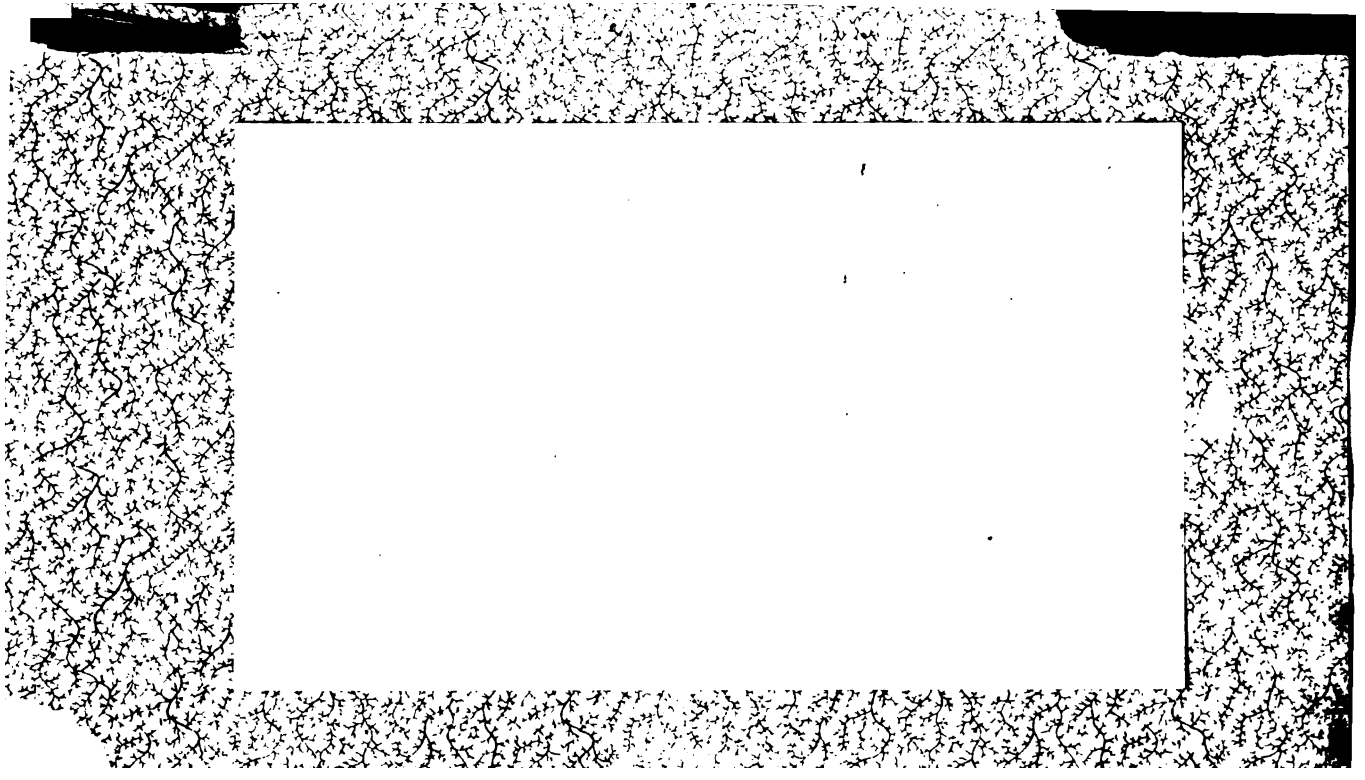

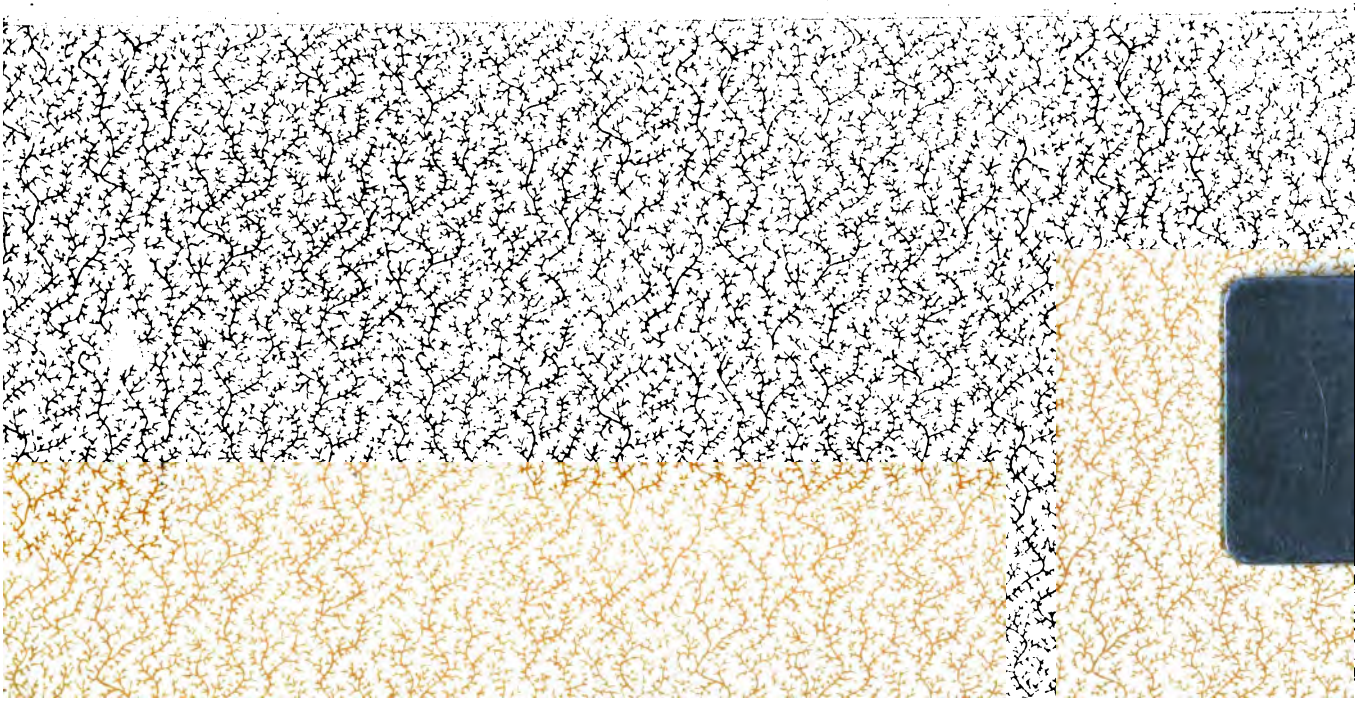

Cuvier
Leo

MEMOIRS

OF

BARON CUVIER.

BY

MRS. R. LEE,

(FORMERLY MRS. T. ED. BOWDICH.)

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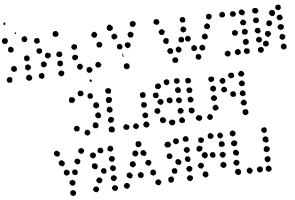

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MEMOIRS

OF

BARON CUVIER.

INTRODUCTION.

Before I enter upon the subject of this volume, I would explain to my readers the motives which have induced me to write it, in order to prevent that appearance of presumption, which may naturally be laid to the charge of an unlearned person, who attempts to write the life of so illustrious a savant.

When death has torn from us those whom we have most loved and revered, and the overwhelming bitterness of grief is past, the first feeling which awakens us from our sorrow is the desire to uphold the memory, and to make known to all men the virtues of the being enshrined in our hearts; a feeling which springs, not only from an honest pride in doing justice to one who is no more, but from a desire that posterity should benefit by the example. Rousing myself, then, from the stunning grief which at first assailed me, I eagerly sought all the public notices which appeared in England concerning the Baron Cuvier, in the hope of finding something equal to his high deserts; but though all did him the justice of placing him above every other naturalist, not one spoke of his talents as a legislator, and all equally neglected his private character. This, and the almost universal incorrectness of detail, no doubt proceeded from ignorance rather than intention; yet, disappointed as I was that my countrymen should have so little known and appreciated one of the most admirable persons of our time, nothing, at that moment, could be further from my thoughts than to supply the deficiencies by my own pen.

Most of those who were either anxious to inquire of me concerning the surviving family, or who were kindly solicitous about myself under such a calamity, seemed to think it a matter of course that I should publish some particulars of my lost friend; but although this certainly suggested the possibility of doing so, I still felt my own inadequacy too deeply to do other than refuse the undertaking. In a few weeks, however, I was solicited in one or two influential quarters to write a short memoir for one of our public journals, and afraid to trust solely to my own reminiscences, I applied to the relatives of Baron Cuvier for data. These data were contributed with a readiness which vouched for the sentiments of the family, and I seriously applied to the task. Recollection crowded upon recollection, anecdote upon anecdote, till, in a short time, it became very difficult to select from the mass. Long did I hesitate from the conviction of my own inability; but the universal desire expressed to me that I should publish the documents which abundantly flowed from the best sources, and the anxiety evinced to know something of the private character and domestic habits of the great man, seemed to point out that part of his career which alone I was worthy to describe. Reflection whispered, that I was able to correct the many errors afloat; that, perhaps, I was the only one in England, who, from having been received into the bosom of his family, could personally speak of various circumstances and events; and when I thought of all the affection and kindness I had received, I began to feel that there would be a degree of ingratitude in remaining silent, and determined that I would, independent of all other publications, attempt to lay open to the English world the noblest part of the gifted individual—his heart.

Such is the chief purport of the present biography; the labours of M. Cuvier speak for his wonderful mind; and time alone can show to us full extent, the influence of that mind upon science. To time also must we look for an impartial opinion upon his political career; but it is only for those who have lived with him to do justice to his high moral virtues; and in the hope that this little volume may serve, when I have followed the illustrious subject of it to

the grave, as a basis for a more extended publication, I offer a narrative of facts.

Having thus, I trust, obviated every feeling of disgust which accompanies all kinds of presumption, and which would, most probably be attached to me, were I to dare to think myself qualified for a biographer of savants, there yet remains something for me to say to those to whom I am unknown; for, when an individual starts from a private circle to give an account of an illustrious public character, it becomes necessary to vouch for the veracity of details, and to explain the opportunities afforded for observation. This will be best done by a short history of my intercourse with the Cuvier family, an introduction to whom took place through our mutually cherished friend, Dr. Leach, of the British Museum.

Mr. Bowdich had returned from his second, and I from my first, voyage to Africa, in the year 1818, and shortly after Mr. Bowdich proceeded to Paris, where his reputation, as the successful African traveller, was already known. The letter of Dr. Leach was scarcely necessary with the Baron Cuvier, who received him with that warmth and encouragement which always marked his conduct towards men of talents younger than himself, that interest which he extended to all who were devoted to science. Struck with the facilities afforded for study in the French capital, Mr. Bowdich determined to remain there some time, in order to qualify himself for the principal object of his ambition, a second travel in Africa. We both accordingly went to Paris in 1819; and from that moment the vast library of the Baron Cuvier, his drawings, his collections, were open to our purposes. We became the intimates of the family, with whom, for nearly four years, we were in daily intercourse. We left France with their blessings; and on returning alone to Europe, I was received even as a daughter. My correspondence with M. Cuvier's daughter-in-law, and other branches of the family, has been uninterrupted since that period; I have paid them repeated visits at their own house; and for fourteen years not a single shadow has passed over the warm affection which has characterised our intimacy.

And now, having stated my motives, and my claims to

confidence, I have to express a sincere gratitude towards those who have assisted me, either by their notes or their works,* and to give an outline of the plan I have thought it necessary to adopt.

Unwilling to incur the risk of confusion, by mingling too much anecdote, either with my narrative of events or description of scientific and legislative labours, I have divided the present volume into four parts or portions, that each may bear its own share of detail. The first will give the data of all the important circumstances of the Baron Cuvier's life, in their respective order; the second will contain an account of his various works, as a savant and philosopher; the third will be devoted to his legislative career; and the fourth will be chiefly confined to those anecdotes which will best illustrate his character as a man. In following this method, I may, probably be led into something like repetition; but I hope I shall be excused, if each part shall be found to contain a whole in itself, which facilitates reference.

* Foremost among these are, Baron Pasquier, M. Laurillard, Dr. Duvernoy, and the Baron de H——.

PART I.

George Leopold Chretien Frederic Dagobert Cuvier was born at Montbéliard (département du Doubs) on the twenty-third of August, 1769. This town now belongs to France, but at that time formed a part of the kingdom of Würtemberg. His family came originally from a village of the Jura, which still bears the name of Cuvier, and settled at Montbéliard at the period of the Reformation. The grandfather of the subject of the present biography had two sons; one became celebrated for his learning, and the other, the father of George Cuvier, entered a Swiss regiment then in the service of France. Having much distinguished himself in his military duties, he was made Chevalier de l'Ordre du Mérite Militaire,* which among the Protestants, was equal to the catholic Croix de St. Louis; and, after forty years service, he retired, with a small pension, to Montbéliard, where he was afterwards appointed commandant of the artillery in that town. At fifty years of age he married a young lady, gifted with much talent and feeling, by whom he had three sons. The eldest died while his mother was pregnant with her second son, which event preyed so much upon her health, that her infant, George, came into the world with a constitution so feeble, that his youth scarcely promised manhood. The cares of this excellent mother, during the extreme delicacy of his health, left an impression on M. Cuvier which was never effaced, even in his latest years, and amid the absorbing occupations of his active life. He cherished every circumstance connected with her memory; he loved to recall her kindnesses, and to dwell upon objects, however trifling, which reminded him of her. Among other things, he delighted in being surrounded by the flow-

* The impossibility of finding English words equivalent to French technical terms, names of public functions, orders, &c. obliges me, in most cases, to preserve the original phrase.

ers she had preferred, and whoever placed a bouquet of red stocks in his study or his room, was sure to be rewarded by his most affectionate thanks for bringing him what he called "the frvourite flower." But this well-judging parent did not confine her cares to his health alone; she devoted herself equally to the formation of his mind, and was another proof of the influence that a mother's early attentions frequently shed over the future career of her son. She guided him in his religious duties, taught him to read fluently at the age of four years, took him every morning to an elementary school, and, although herself ignorant of Latin, so scrupulously made him repeat his lessons to her, that he was always better prepared with his tasks than any other boy at the school. She made him draw under her own inspection; and, by constantly furnishing him with the best works on history and general literature, nurtured that passion for reading, that ardent desire for knowledge, which became the principal spring of his intellectual existence. As he advanced in drawing, his progress was superintended by one of his relations, an architect in the town of Montbéliard; and he successively passed through all the exercises of this first school, repeating the usual catechisms, the psalms of David, and the sonnets of Drelincourt, &c., with the utmost facility. At ten years of age he was placed in a higher school, called the Gymnase, where, in the space of four years, he profited by every branch of education there taught, even including rhetoric. He had no difficulty in acquiring Latin and Greek, and he was constantly at the head of the classes of history, geography, and mathematics. The history of mankind was, from the earliest period of his life, a subject of the most indefatigable application; and long lists of sovereigns, princes, and the driest chronological facts, once arranged in his memory were never forgotten. He also delighted in reducing maps to a very small scale, which, when done, were given to his companions; and his love of reading was so great, that his mother, fearing the effect of so much application to sedentary pursuits, frequently forced him to seek other employments. When thus driven, as it were, from study, he entered into boyish sports with equal ardour, and was foremost in all youthful recreations. It was at this age that his taste for natural history

was brought to light by the sight of a Gesner, with coloured plates, in the library of the Gymnase, and by the frequent visits which he paid at the house of a relation who possessed a complete copy of Buffon. Blessed with a memory that retained every thing he saw and read, and which never failed him in any part of his career, when twelve years old he was as familiar with quadrupeds and birds as a first-rate naturalist. He copied the plates of the above work, and coloured them according to the printed descriptions, either with paint or pieces of silk. He was never without a volume of this author in his pocket, which was read again and again; and frequently he was roused from its pages to take his place in the class repeating Cicero and Virgil. The admiration which he felt at this youthful period for his great predecessor never ceased, and in public, as well as private circles, he never failed to express it. The charms of Buffon's style, a beauty to which M. Cuvier was very sensible, had always afforded him the highest pleasure, and he felt a sort of gratitude to him, not only for the great zeal he had evinced in the cause of natural history, not only for the enjoyment afforded to his youthful leisure, but for the many proselytes who had been attracted by the magic of his language. When the student had ripened into the great master, M. Cuvier found me deeply absorbed by a passage of Buffon; and he then told me what his own feelings had been on first reading him, and that this impression had never been destroyed in maturer years. He had been obliged for the sake of science, to point out the errors committed by this eloquent naturalist, but he had never lost an opportunity of remarking and dwelling on his perfections.

At the age of fourteen we find the dawning talents of the legislator manifesting themselves; and the young Cuvier then chose a certain number of his schoolfellows, and constituted them into an academy, of which he was appointed president. He gave the regulations, and fixed the meetings for every Thursday, at a stated hour, and, seated on his bed, and placing his companions round a table, he ordered that some work should be read, which treated either of natural history, philosophy, history, or travels. The merits of the book were then discussed, after which, the youthful president summed up the whole, and pronounced a sort of

judgment on the matter contained in it, which judgment was always strictly adopted by his disciples. He was even then remarkable for his declamatory powers, and on the anniversary fête of the sovereign of Montbéliard, Duke Charles of Würtemberg, he composed an oration in verse, on the prosperous state of the principality, and delivered it fresh from his pen, in a firm manly tone, which astonished the whole audience. Like most of the young people at Montbéliard, whose talents rendered them worthy of it, and whose parents were not possessed of fortune, he was destined for the church. A free school had been founded for such boys at Tübingen, where they received a first-rate education. But the chief of the Gymnase at Montbéliard, who had never forgiven the young Cuvier for some childish tricks, changed his destiny by placing his composition in the third rank, when the pupils presented their themes for places. George Cuvier felt that his production was equally good with those which had hitherto been judged worthy of the first rank, and at the important moment, when his station at college depended on his success, he was, for no conscious fault, kept back. He became disgusted, and abandoned all thoughts of Tübingen, to which place he was only desirous of going as a means of pursuing his studies; and, frequently, in after-life, he expressed himself most happy at the changes which resulted from this piece of injustice.

Informed of the progress of the young Cuvier, and hearing the highest encomiums of him from the Princess, his sister, the Duke Charles, uncle to the present king of Würtemberg, when on a visit to Montbéliard, sent for him, and, after having asked him several questions, and examined his drawings, declared his intention of taking him under his special favour, and sending him to the University of Stuttgard free of expense, there to enter into his own Academy, called the Académie Caroline. He was then only fourteen, but, in consequence of the preparation he had undergone at the Gymnase of Montbéliard, he was able to take his place among the most celebrated students of the Academy. He, at this age then, quitted the paternal roof for the first time: he was sent among strangers without having an idea of the establishment he was about to enter; and even in his latest years he often said, that he could not recall to memo-

ry this three days journey without a sensation of fear. He was seated between the Chamberlain and Secretary of the Duke, both entirely unknown to him, and who spoke nothing but German the whole way, of which the poor child could not understand one word. On the 4th of May, 1784, he entered the Académie Caroline; and during the four years he passed there, he studied all that was taught in the highest classes,—mathematics, law, medicine, administration, tactics, commerce, &c. After applying himself for one year to philosophy, as his particular object, he then chose the study of administration, which, in Germany, embraces the practical and elementary parts of law, finance, police, agriculture, technology,* &c., and was principally led to this preference, because it also afforded him many opportunities of pursuing natural history, of herborising, and of visiting collections. He, on all occasions, enthusiastically profited by these opportunities, for the cultivation of his darling taste; he frequently read over Linnæus, Reinhart, Mur, and Fabricius. In his walks he collected a very considerable herbarium; and, during his hours of recreation, he drew and coloured an immense number of insects, birds, and plants, with the most surprising correctness and fidelity, and to which drawings he would frequently return with pleasure, when the naturalist was perfect in his career. But it was the same in every thing; for that versatility of talent, which made him the wonder of all who knew him as a man, seems to have distinguished him in early years. He obtained various prizes, and the order of Chevalerie,†—an honour which was only granted to five or six out of four hundred pupils; and nine months after his arrival at Stuttgard, he bore off the prize for the German language.

The youthful Cuvier was destined solely to fill the higher

* Technology is the theoretical part of mechanical science, independent of the practical; a knowledge of which was thought absolutely indispensable to one taking a part in administration.

† The chevaliers dined at a separate table, and enjoyed many advantages, as being under the immediate patronage of the Duke. The lessons of M. Kielmeyer, afterwards called the father of the philosophy of nature, a student much older than himself, were of infinite service to M. Cuvier at this time, as from him he learned to dissect, and with him, Messrs. Pfaff, Marschall, Hartmann, &c. a society of natural history was formed; and he who brought the best composition to the meetings received an order, beautifully drawn by M. Cuvier.

departments belonging to the government of his country; but the pecuniary embarrassments of his parents rendered it impossible for him to wait two or three years, till an opportunity of appointing him should occur to the Duke. The disordered state of the finances in France was so great, that even the payment of his father's pension had ceased, and he was consequently forced to enter into a career wholly different to his own wishes, or to the views of his patron. Duke Frederick, who was governor of Montbéliard, under his brother, Duke Charles, retired to Germany, and in him M. Cuvier lost one of his most able protectors; and every hope of better times failing, he determined to undertake the office of tutor, an idea in some measure familiar to him, as Montbéliard had long supplied instructors to the young nobles of Russia. To Russia, however, he had no wish to proceed, for his lungs, always delicate, were rendered still weaker by close application to his studies, and he sought an appointment in a more genial climate. Such a step was deemed by his companions, considering his already acquired honours, his extraordinary talents, and great attainments, desperate; but he was again to prove, that that which at first appears a severe misfortune often becomes a stepping-stone to future fame and success; for, in a manner compelled to accept that which in every way appeared unworthy of him, M. Cuvier, by so doing, laid the foundation for the cosmopolitan honours which attended his after years. We are now to behold him, then, arriving at Caën in Normandy, in July, 1788, and stationing himself in a Protestant family for the education of the only son, and although not quite nineteen years of age, in possession of that variety and depth of knowledge which was so soon to ripen into the great savant; "bringing with him from Germany that love of labour, that depth of reflection, that perseverance, that uprightness of character, from which he never swerved. To these admirable foundations for glory, he afterwards added that remarkable clearness of system, that perfection of method, that tact of giving only what is necessary, in short, that elegant manner of summing up the whole, which particularly distinguishes the French writers: the whole superstructure was completed by the most perfect modesty, and that respect for his own esteem, without which

talents become the medium of traffic for the acquirement of sordid possessions."*

Whilst with the family of the Count d'Hericy, M. Cuvier saw all the nobility of the surrounding country; he acquired the forms and manners of the best society, and became acquainted with some of the most remarkable men of his time. Nor was his favourite study followed with less ardour in consequence of finding himself surrounded by new friends and new duties. A long sojourn on the borders of the sea first induced him to study marine animals, but, without books, and in complete retirement, he confined himself to the objects more immediately within his reach. It was at this period also, (June, 1791, to 1794,) that some Terebratulæ having been dug up near Fécamp, the thought struck him of comparing fossil with recent species;† and the casual dissection of a Calmar‡ led him to study the anatomy of Mollusca, which afterwards conducted him to the developement of his great views on the whole of the animal kingdom. It was thus, from an obscure corner of Normandy, that that voice was first heard, which, in a comparatively short space of time, filled the whole of the civilized world with admiration,—which was to lay before mankind so many of the hidden wonders of creation,—which was to discover to us the relics of former ages, to change the entire face of natural history, to regulate and amass the treasures already acquired, and those made known during his life; and then to leave science on the threshold of a new epocha. The class called Vermes by Linnæus, included all the inferior animals, and was left by him in a state of the greatest confusion. It was by these, the lowest beings in creation, that the young naturalist first distinguished himself: he examined their organization, classed them into different groups, and arranged them according to their natural affinities. He committed his observations and thoughts to paper, and,

* The Baron D. H.

† The idea of making fossil remains subservient to geology was not due to M. Cuvier alone, for several others seem to have entertained the same views; but his pre-eminence consisted in making use of this idea, and carrying it to an extent far beyond the calculations of his predecessors or contemporaries.

‡ A species of Cuttle fish.

unknown to himself at that time, laid the basis of that beautiful fabric which he afterwards raised on zoology. He wrote concerning them, to a friend, "These manuscripts are solely for my own use, and, doubtless, contain nothing but what has been done elsewhere, and better established by the naturalists of the capital, for they have been made without the aid of books or collections." Nevertheless, almost every page of these precious manuscripts was full of new facts and enlightened views, which were superior to almost all that had yet appeared. A little society met every evening in the town of Valmont, near the château de Fiquainville, belonging to the Count d'Hericy, for the purpose of discussing agricultural topics. M. Tessier was often present at these meetings, who had fled from the reign of terror in Paris, and who was concealed under the title and office of surgeon to a regiment, then quartered at Valmont. He spoke so well, and seemed so entirely master of the subject that the young secretary of the society, M. Cuvier, recognised him as the author of the articles on agriculture in the Encyclopédie Méthodique.

On saluting him as such, M. Tessier, whose title of Abbé had rendered him suspected at Paris, exclaimed, "I am known, then, and consequently lost."—"Lost!" replied M. Cuvier; "no; you are henceforth the object of our most anxious care." This circumstance led to an intimacy between the two; and by means of M. Tessier,* M. Cuvier entered into correspondence with several savans, to whom he sent his observations, especially Laméthrie, Olivier, De la Cépéde, Geoffroy St. Hilaire, and Millin de Grand Maison. Through their influence, and from the memoirs published in several learned journals, he was called to Paris, where endeavours were making to re-establish the literary institutions, overthrown by the Revolution, and where it was reasonable to suppose that he would find the means of placing himself. In the spring of 1795, he obeyed the invitation of his Parisian friends, and, by

* "Je viens de trouver une perle dans le fumier de Normandie,"—"I have just found a pearl in the dunghill of Normandy,"—wrote M. Tessier to his friend, M. Parmentier; thus detecting the great naturalist in M. Cuvier's earliest productions, and appreciating what were then but the germs of his talent.

the influence of M. Millin, was appointed membre de la Commission des Arts, and, a short time after, professor at the central school of the Panthéon. For this school he composed his "Tableau élémentaire de l' Histoire naturelle des Animaux;" which work contained the first methodical writing on the class Vermes that had been given to the world. His great desire, however, was to be attached to the Museum of Natural History, the collections in which could alone enable him to realise his scientific views. A short time after his arrival in the capital, M. Mertrud was appointed to the newly-created chair of comparative anatomy at the Jardin des Plantes, and finding himself too far advanced in years to follow a study which had hitherto been foreign to his pursuits, consented, at the request of his colleagues, particularly MM. de Jussieu, Geoffroy, and De la Cépéde, to associate M. Cuvier with him in his duties. This association was exactly what M. Cuvier was desirous of obtaining; and no sooner was he settled in the Jardin des Plantes, as the assistant of M. Mertrud, July, 1795, than he sent for his father, then nearly eighty years of age, and his brother, M. Frederic Cuvier; his mother he had unfortunately lost in 1793. From the moment of his installation in this new office, M. Cuvier commenced that magnificent collection of comparative anatomy which is now so generally celebrated. In the lumber-room of the museum were four or five old skeletons, collected by M. Daubenton, and piled up there by M. de Buffon. Taking these, as it were, for the foundation, he unceasingly pursued his object; and, aided by some professors, opposed by others, he soon gave it such a degree of importance that no further obstacle could be raised against its progress. No other pursuit, no relaxation, no absence, no legislative duties, no sorrow, no illness, ever turned him from this great purpose, and created by him, it now remains one of the noblest monuments to his memory.*

The National Institute was created in 1796; and M.

* It was of this collection that he said, when asked if he should ever consider himself rich in it, "Quelque riche qu'on en soit, on en désire toujours." (However rich we may be, we always wish for more.)

Cuvier, although only known by his scientific papers, and his intimacy with learned men, especially De la Cépède and Daubenton, was made one of its first members, and was the third secretary, appointed at a time when these secretaries quitted their office every two years.

In the spring of 1798, M. Berthollet having been charged by Buonaparte to seek for savans to accompany the expedition to Egypt, proposed to M. Cuvier to form one of the number. This, however, he refused, from the conviction, that he could better serve the interests of science by remaining amid the daily improving collections of the Jardin, where his labours could be systematic, than by making even a successful travel. He always felt happy afterwards in having thus decided; the propriety of which resolution no one can attempt to dispute.

About this time, one of M. Cuvier's pupils, M. Dumeril, who had zealously followed all his lectures, asked permission to publish the notes he had taken in the lecture-room. These, in M. Cuvier's opinion, would have formed a very imperfect work, and he preferred going over the whole again, devoting himself to the general and philosophical notices, and those parts which treated of the brain and the organs of the senses. M. Dumeril chiefly undertook the details of myology and nevrology. The two first volumes of the "Leçons d'Anatomie comparée" appeared in 1800, and met with the greatest success, notwithstanding a few errors, which were afterwards corrected and acknowledged by M. Cuvier, who in common with all those who prefer the interests of science to their own momentary fame, and with the candour which always marks real learning, never hesitated either to avow or to rectify a fault, a perfection which mingled with his private as well as public actions. The materials for these lectures were supplied by a collection, then in its infancy, and which was increased an hundred-fold by himself; and those who have criticised these early volumes, have been obliged to confess, that the means of doing so were given to them by the author himself, who threw every thing open to them, even were it to convict him of those unavoidable mistakes to which he had been liable, from the then imperfect state of the collection. The three last volumes of this work were much

more complete and methodical than the first two, and were edited under the inspection of Dr. Duvernoy (another of M. Cuvier's pupils,) in the year 1805, though the second, notwithstanding its inaccuracies, was always considered by M. Cuvier as the most interesting of the whole.

But to return to the year 1800, when the celebrated colleague of M. de Buffon died, at a very advanced age, M. Cuvier was named professor in his place, at the Collège de France, where he taught natural philosophy, at the same time that he lectured on comparative anatomy at the Jardin.* On succeeding to this chair he resigned that of the central school of the Panthéon. Also in 1800, Buonaparte, who, as First Consul, aspired to civil as well as military glory, caused himself to be appointed president of the Institute, and, in consequence, held direct communication with M. Cuvier. In 1802, he appointed him one of the six inspectors-general ordered to establish Lycées† in thirty towns of France. In this capacity M. Cuvier founded those of Marseilles, Nice, and Bordeaux, which are now

* An estimate of the pecuniary advantages then attending the career of a savant, may be gathered from the following letter written by M. Cuvier, in answer to one from the late M. Hermann.

"My dear and learned confrère, (1800.)

"You are not to suppose that Paris is so highly favoured; for twelve months pay are now due at the Jardin des Plantes, and all the national establishments for public instruction, in Paris as well as at Strasburgh; and if we envy the elephants, it is not because they are better paid than we are, but because, while living on credit, as we do, they are not aware of it, and, consequently, are insensible to the pain it gives. You know the saying about the French, that when they have no money they sing. We savans, who are not musicians, work at our sciences instead of singing, which comes to the same thing. Believe me, my dear confrère, this French philosophy is better than that of Wolff, or even that of Kant; and you are even more able to profit by it than we are, for you can still purchase beautiful books, and even artificial anatomy, which are objects of luxury in their way. I have not yet read Poli, and defer this study till the time when I publish my anatomical history of animals with white blood. There is, as yet, but one copy of it in Paris, as I am informed; and thus you see we offer nothing which can excite your envy."

† Lycées are public schools, under the management and direction of the government. The pupils who frequent them pay a small sum, which sum is appropriated to the use of the school. The professors receive their salaries from the government, which reserves to itself a right to nominate a certain number of pupils entirely gratis. The private schools are always established near one of these Lycées, as the pupils are obliged to attend there for a certain number of hours every day.

called royal colleges; and while thus employed at Marseilles, he profited by the opportunity so afforded him of continuing his studies on marine animals. During his absence from Paris, the Institute underwent a change of form, and its secretaryships were made perpetual.* M. Cuvier was elected to that of natural sciences, which he held with honour to the day of his death. On this appointment he quitted his labours of inspector general of education.

A fall having occasioned the death of M. Cuvier's father, shortly after his arrival in Paris, and his brother's wife having died the first year of her marriage, in giving birth to a son†, the two brothers remained alone; and it was in this comparatively condition that M. Cuvier thought of seeking a companion. In 1803, he married the widow of M. Duvaucel, Fermier General, who had perished on the scaffold in the year 1794. This was no match of interest; for Madame Duvaucel had been wholly deprived of fortune by the Revolution, and brought four children ‡ to M. Cuvier, whom she had borne to M. Duvaucel. But well had M. Cuvier judged of the best means of securing domestic enjoyment; for this lady, who is a rare combination of

* Napoleon fixed the salary of the perpetual secretaries of the Institute at 6000 francs; and on its being observed to him that it was too much, he replied, "The perpetual secretary must be enabled to receive at dinner all the learned foreigners who visit the capital."

† M. Frederic Cuvier is now keeper of the ménagerie of the Jardin des Plantes, in which capacity his observations on the instinct, habits, and dentition of animals have been highly valuable. He is the author of several learned works on these subjects, is member of the Institute, one of the inspectors-general of education, &c. &c.; but all these titles to public consideration are nothing in comparison to the admirable qualities of his heart and temper. The distinguished talents of the son thus bequeathed to him will at least bear the illustrious name of Cuvier one generation further with honour.

‡ Two of these children are dead, one of them having been assassinated in Portugal during the retreat of the French in 1809. The other fell a victim to his scientific zeal in a pernicious climate; and after having displayed great talent and courage, while travelling in India and the neighbouring islands for four years, in order to make collections for the museum in Paris, expired at Madras, at an early age, lamented by all as a youth of great promise, and the most endearing qualities. One of the survivors holds a high place in the customs of Bordeaux; and the other, who has been loved and cherished by M. Cuvier as his own daughter, has had the happiness of devoting herself to him in his last moments, and now forms the sole consolation of her afflicted mother.

mind, manner, and disposition, threw a bright halo of happiness round him, which was his support in suffering, his refuge in trouble, and a powerful auxiliary, when his heavy and important duties allowed him to steal an hour of rational and unrestrained conversation. By this marriage he had four children, the first of whom, a son, died a few weeks after his birth, and who were all successively taken from him.

In 1808, in his character of Perpetual Secretary, M. Cuvier wrote a Report on the Progress of Natural Sciences, from the year 1789. A mere report was demanded; but under this title the learned author produced one of the most luminous treatises that had ever appeared, "serving as a beacon to the path which had already been traversed, and to that which was yet to be pursued."* The report was formerly presented to the Emperor in the council of state. In this same year, when Napoleon created the Imperial University, M. Cuvier was made one of the counsellors for life to this body, which brought him constantly into the immediate presence of the Emperor.

In 1809 and 1810, in his office of Counsellor to the University, M. Cuvier was charged with the organization of the academies of those Italian states which were, for a time annexed to the empire. The regulations made by him at Turin, Genoa, and Pisa, were afterwards continued by the sovereigns of these countries on their return to their dominions.

In 1811, appeared one of the most important of all M. Cuvier's scientific labours,—his work on Fossil Remains; which opened new sources of wonder in the history of creation, and made an entire revolution in the study of geology. Also, in 1811, he was ordered to form academies in Holland and the Hanseatic towns, where several of his arrangements are still existing. His Reports from Holland are particularly worthy of admiration; for in them he exposed the true causes of the inferiority of that country in classical attainment, and showed, that the disgust often felt by the pupils, arose from their not having enough given to their minds to feed upon. The schools for the people attracted

* Baron Pasquier.

his attention in all countries, and were to him an unceasing theme of meditation.

While at Hamburgh, M. Cuvier received the unsolicited title of Chevalier from the Emperor, which rank was assured to his heirs. However, the hope of transmitting his worldly honours to his posterity was soon to be destroyed; for, after being deprived of a daughter, four years old, in 1812, he was, in 1813, bereaved of his son, who was seven years of age. This last loss made a deep impression on him, which was never entirely effaced; and even after the lapse of years he never saw a boy of that age without considerable emotion, a feeling which he did not strive to hide from his own family, or those with whom he was intimate; and often, when walking with his daughters, he would stop before a group of boys, who, as they played, reminded him of his child.* This misfortune happened while M. Cuvier was fulfilling a mission at Rome, for the purpose of organizing the university there. It was remarkable enough, that a Protestant should hold this office in the metropolis of the Papal dominions, but the moderation and benignity of M. Cuvier knew how to soften inconsistencies; his tolerance for all sincere doctrines of religion proceeded from conscientious motives, and therefore he was not likely to revolt the creed of those among whom he mingled. While thus employed at Rome, Napoleon, from his own personal feeling, appointed him Maître des Requêtes in the Council of State, of which honour he was first informed by the Moniteur. The contact into which he was constantly brought with the Emperor, in his office of Counsellor to the University, the intimate knowledge which his sovereign had thus acquired of his administrative talents, united to the favourable representations of the Grand Master, Fontanes, were supposed to be the causes of this marked distinction. Towards the end of this year (1813) he was further employed by Napoleon, in a manner that showed the estimate he had made of his character. He appointed him Com-

* So late as 1830, when M. Cuvier visited this country, I took my son to see him at the hotel where he was staying, forgetting the effect it was likely to produce; and I shall for ever remember the pause he made before him, and the melancholy tenderness with which he laid his hand on the head of the boy.

missaire Impérial extraordinaire, and sent him on the difficult mission of endeavouring to raise the people inhabiting the left bank of the Rhine in favour of France, (their new country) against the invading troops then marching against her. M. Cuvier was ordered to Mayence; but he was stopped at Nancy, by the entrance of the allied armies, and obliged to return.

The events of 1814 happened at the moment when the Emperor had bestowed on him a still more honourable mark of his favour, by making him Counsellor of State. A delay of only a few month, however, took place in his final establishment in the council; for Louis XVIII., who was very sensible to intellectual merit, again conferred this dignity on him, and, in the September of the same year, first employed him in the temporary office of Commissaire du Roi. These favours, were in some measure, to be attributed to an introduction to the Abbé de Montesquion, then minister, by means of MM. Royer Collard, Becquey, de Talleyrand, and Louis, who were well acquainted with the Abbé, and who, by their presentation, gave him an opportunity of profiting by the merits of M. Cuvier.

The return of Napoleon for a while banished the new counsellor from his dignity, but he was retained by the Emperor in the Imperial University. After the hurricane of the Hundred Days it became necessary to remodel both the Royal and Imperial Universities, and a provisional superintendence was deemed necessary. A committee of public instruction was created to exercise the powers formerly belonging to the grand master, the council, the chancellor, and the treasurer of the University. M. Cuvier made a part of this committee, and was at once appointed to the chancellorship, which office he retained till his death, under the most difficult circumstances, in the midst of the most opposite prejudices, and notwithstanding the most inveterate resistance offered to him as a Protestant. The jesuitical tendency of those in power augmented the difficulties that a wise and disinterested man must at all times meet with, in trying to do good, and to prevent evil; but when that man was of a different religion, it may easily be imagined in how delicate a situation he must have been often placed, and how greatly his religious faith must have in-

creased the obstacles he had to encounter. To those unacquainted with the early part of M. Cuvier's career, it would seem extraordinary, that all these high functions should be conferred on a naturalist by profession, but it should be considered, that he only thus pursued his original destination, out of which he had been thrown by political events; that he had only changed his master, and become councellor of state to a great king instead of a petty prince. From this period he took a very active part, not precisely in political measures, properly so called, from which he by choice withdrew himself as much as possible, but in projects for laws, and every sort of administration, which especially belonged to the Committee of the Interior attached to the Council of State. He was also, generally speaking, the Commissaire du Roi, appointed for defending the new or meliorated laws before the two Chambers.

During the first years of the restoration of the Bourbons, M. Cuvier was twice offered the directorship for life of the Museum of Natural History, but he persisted in refusing it, from the conviction that it was much more favourable to the advancement of science, that this establishment should continue under that form of administration, which necessitated the election of a yearly director, chosen by the professors and appointed according to their vote. A second edition of the Fossil Remains was published in 1817, the preliminary discourse of which underwent several more editions. The Régne Animal was also brought out in this year, which classed every branch of zoology according to its organization. In 1818, M. Cuvier made a journey to England with his family and his secretary, the excellent M. Laurillard, and where he remained about six weeks, visiting every thing worthy of notice in London. His remark to his Majesty George IV. concerning our natural history was, that if the private collections could be amassed into one, they would form a great national museum, which would surpass every other. At this period the election for Westminster was going forward, and he frequently dwelt on the amusement he had received from being on the hustings every day. These orgies of liberty were then unknown in France, and it was a curious spectacle for a man who reflected so deeply on every thing which passed before him,

to see and hear our orators crying out at the tops of their voices to the mob, who pelted them with mud, cabbages, eggs, &c.; and Sir Murray Maxwell, in his splendid uniform, and decorated with orders, flattering the crowd, who reviled him, and sent at his head all the varieties of the vegetable kingdom. Nothing ever effaced this impression from M. Cuvier's memory, who frequently described the scene with great animation.

M. Cuvier had two objects in visiting England, one of which was, to observe, on the spot, the influence of our constitutional government, which was only known to him in theory. He conversed with several of our political characters, he saw every thing which marked the application of our system upon mankind, and took back with him to France clear and precise ideas, by which he well knew how to profit in his future labours. It was frequently a matter of great astonishment to my countrymen to find him so well acquainted with our institutions, even to the details of their expenses, the period of their formation, and the changes they had undergone. The other, and the great object of M. Cuvier's excursion, was of a scientific nature; and it is with pleasure I add that he always spoke of his reception here with gratitude. The facilities afforted him both by our savants and our statesmen, the confidential communications he received, and the manner in which all was laid open to him, were frequently a source of happy recollection, which was as often expressed. Some days of the period of his sojourn in England were passed in Oxford, whither he was accompanied by his valued friend, Dr. Leach of the British Museum, who was his incessant chaperon in this country; he returned from them perfectly enchanted with the city and its great objects of interest, and with the distinction which attended his reception there. His wife and daughters met him at Windsor, and, after passing the day in visiting the castle, park, &c., they proceeded, late in the evening, to the house of Sir William Herschel, who received them with the utmost kindness, and showed them his great telescope, though the night was too dark to profit much by this famous instrument. Another visit paid by M. Cuvier was often alluded to by him with pleasure; it was to Sir Joseph Banks's house at Spring Grove: he had often been

to see him in Soho Square, but the entertainment given to the whole party to Spring Grove, resembled a fête champêtre. The only thing to which M. Cuvier could not reconcile himself in England was, the formality and length of our great dinners, the long sittings after which were always mentioned by him with an expression of ennui, even in his countenance. At one of these sittings, at Sir Everard Home's, the conversation turned upon some political question. In the course of the discussion M. Cuvier said,—"But it would be very easy to clear up this point, if Sir Everard would send to his library for the first volume of Blackstone's Commentaries." Upon this Sir Everard, with great emphasis, exclaimed, "Know, Monsieur, that I have not such a book in my library, which, thank God, only contains works of science." To this M. Cuvier quietly replied, "The one does not prevent the other;" but never could recollect this, to him extraordinary boast, without a mixture of amusement and astonishment. While in England, M. Cuvier was appointed to the Académie Française, chiefly in consequence of the brilliant éloges he had read in the Académie of Sciences on its deceased members. His discourse upon his reception is a beautiful instance of his classical style of writing. Towards the end of 1818, he was offered the Ministry of the Interior, but the political conditions attached to it being such as he could not conscientiously accept, he declined the honour.

In 1819, M. Cuvier was appointed President of the Comité de l'Intérieur, belonging to the Council of State, an office which he held under all changes of ministry; because, notwithstanding its importance, it is beyond the reach of political intrigue, and only demands order, unremitting activity, strict impartiality, and an exact knowledge of the laws and principles of administration. In this same year, Louis XVIII., as a mark of a personal esteem created him a Baron, * and repeatedly summoned him to assist in the cabinet councils.

* A week after M. Cuvier received this title he went to the theatre, and in the course of the evening one of the actors exclaimed, in his part, "and for all these services, the King has only created him a Baron." The audience gaily applied the sentence to M. Cuvier, who was as much amused as any of them at the coincidence.

Twice had M. Cuvier held the office of Grand Master of the University, when the place could not conveniently be filled up, but he never received the emoluments of it; and, in 1822, when a Catholic bishop was raised to this dignity, he accepted the Grand Mastership of the Faculties of Protestant Theology; on assuming which, he made conditions, that he should not receive any pecuniary reward. This appointment associated him with the ministry, and gave him the superintendence, not only of the religious, but the civil and political rights of his own creed, and ceased only with his life, although the Grand Masters were afterwards laymen.

In 1824, M. Cuvier officiated, as one of the Presidents of the Council of State, at the coronation of Charles X.; and, in 1826, received from that monarch the decoration of Grand Officer de la Légion d'Honneur. On the Saturday he knew nothing of this compliment, and on Sunday it arrived, without, however, disturbing him from the delighted survey he was taking, with his daughter-in-law, of some alterations just made in his house. At this time also, his former sovereign, the King of Würtemburg, appointed him Commander of his Order of the Crown.

In 1827, to M. Cuvier's Protestant Grand Mastership was added the management of all the affairs belonging to the different religions in France, except the Catholic, in the Cabinet of the Interior, for which increase of his duties he also refused to accept any emolument. But this year was marked with the heaviest calamity the Baron Cuvier had yet sustained, the loss of his only remaining child; a pious, talented, beautiful young woman of twenty-two, on the eve of marriage, and whose bridal chaplet mingled with the funeral wreath on her bier. Lovely in every action, lovely in person and manner, and rich in her attainments, no question ever arose as to who did or did not admire Clementine Cuvier; she unconsciously commanded universal homage, and secured its continuance by her lowliness of heart and her unfailing charity. The daughter was worthy of the father: it may be imagined, then, how that father loved her, and how heavy was the visitation. But M. Cuvier, with that high sense of duty which had always distinguished him, felt that he lived for others, and that he had

no right to sink under the heavy load of grief imposed on him. With the energy that might be expected from such a character, he sought relief in his duties; and although many a new furrow appeared on his cheek; although his beautiful hair rapidly changed to silvery whiteness; though the attentive observer might catch the suppressed sigh, and the melancholy expression of the uplifted eye, no one of his important offices remained neglected; his scientific devotion even increased; his numerous protégés received the same fostering care, and he welcomed strangers to his house with his wonted urbanity. It has been related by an eye-witness, that, at the first sitting of the Comité de l'Intérieur, at which M. Cuvier presided after this event, and from which he had absented himself two months, he resumed the chair with a firm and placid expression of countenance; he listened attentively to all the discussions of those present; but when it became his turn to speak, and sum up all that had passed, his firmness abandoned him, and his first words were interrupted by tears; the great legislator gave way to the bereaved father, he bowed his head, covered his face with his hands, and was heard to sob bitterly. A respectful and profound silence reigned through the whole assembly; all present had known Clementine, and therefore all could understand and excuse this deep emotion. At length M. Cuvier raised his head, and uttered these few simple words:—"Pardon me, gentlemen; I was a father, and I have lost all;" then, with a violent effort, he resumed the business of the day with his usual perspicuity, and pronounced judgment with his ordinary calmness and justice.

In the following year (1828) appeared the first of a series of twenty volumes on Ichthyology, a magnificent work, accompanied by the most exquisite plates. In 1829, a second edition of the Régne Animal was published; and it is scarcely possible to imagine any thing finer than the force of that mind, which could thus seek for solace under the deepest affliction. These works were in progress long before the death of Mademoiselle Cuvier, and, we may safely suppose, were not much retarded by that grievous event. What was the state of the father's mind during the time of her illness, may be gathered from a letter, published in the second part of this volume.

The year 1830 saw the Baron Cuvier again in the lecturing chair at the Collége de France, where he opened a course on the History and Progress of Science in all Ages, and which was continued till the close of his earthly labours. In the same year he paid a second visit to England, and happened to be in London when the last revolution in France took place. He had long contemplated this visit, being desirous of personally inspecting some of the scientific treasures of this country; but a long delay (even after his congé was obtained) took place, owing to the death of the learned Baron Fourrier, the other secretary to the Académie des Sciences, whose duties fell on M. Cuvier till a successor could be appointed. On the publication of the famous ordonnances of Charles X. and his ministers, a universal silence in public was observed, as if the first person who ventured to talk about them, was to set fire to a train of gunpowder. Even M. Cuvier, though so clear-sighted on other occasions, was completely taken by surprise in this instance, and partook of the general opinion, that "this stroke of policy on the part of the state would lead to a lengthened resistance of taxes, and to partial disturbances, but not to any violent crisis;" and deceived, as so many others were, by the profound tranquillity which reigned in every part of the capital, he started for England on the appointed day. Five hours after his carriage had passed the barrier, the firing commenced in Paris, and he and his daughter-in-law quietly pursued their route by easy stages. They were overtaken on the road near Boulogne by the flying English, who gave them vague reports, and they pressed on to meet their letters at Calais. There, after two days of the deepest anxiety, during which time they formed twenty projects for immediate return, and were as often retained by the certainty of not being able to re-enter Paris, or even proceed on the road back, with passports dated in the month of May, and leave of absence signed by the hand of Charles X., they at once received the details of the Revolution, and of the restoration to peace. The power of asking leave of absence, under such an accumulation of duties as M. Cuvier's, was so rare, his time was so precious to himself, and the assurances of perfect tranquillity in Paris, combined with the safety of those whom they loved, were

so decided, that he and Mademoiselle Duvaucel determined on proceeding to England. Instead, however, of making a stay of six weeks, as they had at first intended, they returned in a fortnight; and to the happiness of those around him, M. Cuvier found himself, even under the government of the citizen king, in possession of all his honours, his dignities, and his important functions.

In 1832, Baron Cuvier was made, by order of Louis-Phillippe, a peer of France, and the appointment of President to the entire Council of State only waited for the royal signature, when, on the 13th of May, of the same date, the noble being closed his earthly career.

PART II.

THAT portion of my work which now lies before me has a grandeur and extent of subject which none but the life of M. Cuvier could present, and though I have confined myself to a mere description of his scientific labours, it will in size, exceed all the others. But thus to follow him through this part of his vast career, thus to show him in the light of a savant, is no easy task; for though a simple catalogue of his publications might have astonished by its length, it would have been very inadequate to my purpose. I have therefore attempted to carry my readers through each undertaking, by giving the outline of every plan, its purport, and its mode of execution; citing M. Cuvier's own sentiments and reflections in order to confirm that which is set forth, and occasionally giving even his own words, as examples of that style which was part of himself. I have also deemed it advisable to point out, in as brief a manner as possible, the state of natural history at the time he appeared, that a better estimate may be formed of the important revolutions which he either completed, or for which he laid the foundation.

Notwithstanding the great endeavours made in the earlier part of the seventeenth century towards the progress of natural history, as a science, there yet remained, when M. Cuvier first entered the learned world, as much to be done as had been effected since the revival of letters. The perfect form in which plants can be preserved with comparatively little trouble, the small expense at which they can be procured, and the narrow compass in which collections can be contained, gave them great advantages over other branches of natural history. Accordingly, we find that Botany had most profited by the exertions of several illustrious naturalists; it had even assumed that grouping, according to general organization and structure, which is called the natural system; but Zoology, from the greater difficulties which the study of it presents, was compara-

tively speaking, in a much less advanced state. On looking back to the history of this science from the beginning, we shall see three great names the possessors of which caused the most important revolutions, who gave fresh impulse towards its perfection, and who have been the oracles of the civilized world. To be able to mark the differences of one being from another is the foundation of this science; the great number of these beings necessitates classification, in order to assist the memory, and facilitate a perfect comprehension of their nature and properties, and the part they perform in creation. To Aristotle belongs the honour of the first epoch, by having invented the true method, that alone which can be permanent, as it is founded upon organization, and is the result of personal observation. The writers after him, till the northern barbarians for a time buried all letters in obscurity, contented themselves with copying what he had done from one work into another, and by no means followed his example of seeing and judging for themselves. During the middle ages, now and then an enlightened monk, for a moment, threw a glimmering light over some branch of animated nature, and the first revival of learning presents us with many able efforts in this department of science. At length Linnæus appeared, and formed the second era. He assembled all known living beings together, and classed them according to the mass which he brought before him, selecting one or two individual characters as the foundation of his clear and simple system, and by this, and by his ingenious binary nomenclature, not only accomplished the great object of natural history, which is to make us acquainted with the beings themselves, but by thus collecting them together, greatly contributed to our knowledge of their affinities. It was easy to be seen, however, that in proportion as our knowledge of nature increased, this artificial classification would scatter so many groups that were intended to remain united among themselves, that it would be found insufficient for the enlarged scale which the discoveries of every year presented to us. The Systema Naturæ then of Linnæus became a mere sketch of what was to be done afterwards; even more recent naturalists touched with a timid hand upon the natural grouping of the

highest branches of the science, and it was reserved for a mighty genius of our own time to open the path to us, and to smooth the difficulties of that path, by precisely determining the limits of the great divisions, by exactly defining the lesser groups, by placing them all according to the invariable characters of their internal structure, and by ridding them of the accumulations of synonymes and absurdities which ignorance, want of method, or fertility of imagination had heaped upon them.

Gifted with natural powers beyond the common lot of mortality, guided in earliest youth by a sensible and rightly-judging parent, and prepared by an excellent German education, M. Cuvier was still further aided by a circumstance which, at first sight, seemed to be an obstacle to his progress. Almost excluded from the society of first-rate naturalists, and deprived, by the distracted state of France, of access to first-rate books, he was driven to nature herself; and as she, in her most minute operations, carries into execution that beautiful order and perfection which distinguishes her larger productions, so, to talents like those of M. Cuvier, did the study of the most insignificant animals open a vast field for future research and investigation. His mind was peculiarly calculated to embrace the great whole which a mass of details offers; at the same time he knew, that by an intimate and accurate knowledge of these details alone could he realize the comprehensive views, which, even in his first studies, filled his great mind. He was of opinion, that every branch of science was to be rendered important if studied properly; no one, therefore, set a higher value on minutiæ, at the same time he was never once seen to lose himself in the intricacies and minor considerations attached to these minutiæ. Every research, no matter how humble, how insignificant it might appear to the eyes of others, was by him converted to the furtherance of his great objects, the discovery and just appreciation of the truth.

The anatomical labours of M. Cuvier tended to determine the physical functions of every animal, of each part of each animal, and to assign to the animal itself its place in the series of beings; to prove, that as each of the parts of an organized being has a function to perform, so does

each being play its part in nature, acting on all that surrounds it, and contributing to form that whole in our planet, which excites the wonder and admiration of all inquirers; a whole which, perhaps, takes its station in the parts of a still wider expanse, into which we cannot penetrate. "All is linked together," said M. Cuvier, speaking of creation, "all is dependent, all existence is chained to other existence, and that chain which connects them, and of which we can only see some comparatively insignificant portions, is infinite in extent, space, and time." He believed that all things in this world were made for some express purpose; he believed that all was due to one Supreme Intelligence, which had provided organs for fulfilling the ends for which all things were created. His method resembled that of Aristotle, Bacon, and Newton, for it was that of observation and experience, and, like them, he felt that no general formula could be founded, no general principle could be established, without a vast assemblage of facts. He not only rejected all theories which were not thus founded, from a conviction that they led the mind astray from real observation, but he carefully abstained from encouraging any system which resulted from the discovery of only a small number of facts; believing that systems so based led their followers solely to study those facts which were favourable to their own peculiar views.

These were the broad principles which M. Cuvier applied to every branch of human knowledge; for, like the Greek philosopher, he was not ignorant of any thing, not even excepting the mathematical sciences, of which he understood the foundation and machinery as if he had studied them in the character of a professor. That same intelligence, also, which comprehended the form and organization of the beings of the present and former world, had penetrated into the organization of political bodies, and perfectly appreciated their springs of action, their strength, and their weaknesses. Thus gifted, thus instructed, M. Cuvier unconsciously became a central point, round which the scientific and learned of every class sooner or later rallied. He was the kind and equitable oracle of savans of all countries; for, wholly divested of national prejudices, and delighting to dwell on that which

was noble in all mankind, he was never, for an instant, obscured by party spirit, and was wholly unconscious of that supercilious feeling of superiority, which is so hurtful to the progress of its possessor, and also to the progress of others.

The earliest of M. Cuvier's scientific labours were directed towards Entomology, and in them we behold the dawning efforts of his genius, the foundation of that minute and detailed observation which so particularly distinguished all his researches, and of which I am about to give rather a lengthened description, in order to show that he commenced the task before him in a way that necessarily led to the perfection he afterwards attained. He has been heard to observe that the wonderful things he met with in the organization of insects raised his genius to elevated thoughts; and such was his opinion of Entomology in later life, that he asserted, "If I had not studied insects from choice when I was at college, I should have done so later, from a conviction of its necessity." An anecdote is related of him by M. Audouin*, in his Discourse, read at the Entomological Society of Paris, which proves still further the value he set upon such pursuits. A young student of medicine came to him one day, and ventured to tell him, that he had discovered something new and remarkable in dissecting a human subject. "Are you an Entomologist!" asked M. Cuvier.—"No," replied the student.—"Well, then," returned M. Cuvier, "go and anatomize an insect, I care not which, the largest you can find, then re-consider your observation, and if it appear to be correct, I will believe you on your word." The young man submitted cheerfully to the proof; and soon after, having acquired more skill and more judgment, went again to M. Cuvier, to thank him for his advice, and, at the same time, to confess his error. "You see," said M. Cuvier, smiling, "that my touchstone was a good one."

In another part of this work I shall have occasion to speak of the Entomological drawings of M. Cuvier, but this is the place to show to what extent he carried these

* Professor of Entomology at the Jardin des Plantes, having succeeded to the chair recently vacated by the death of M. Latreille.

youthful researches. Several fragments and memoirs, from his pen, exist on this subject; and among them is a paper, written in Latin, at the age of twenty-one, while in the château de Fiquanville, describing several Carabi,* and accompanied by illustrations, which were executed with the utmost delicacy and fidelity. Several magnified details were added to the text, which were prior to many afterwards given as new by professed Entomologists. In the same paper were delineations of other Coleoptera, and also of several Hemiptera, and various insects accompanied by descriptions. In 1791, M. Cuvier corresponded on the same subject with MM. Fabricius and Pfaff; and wrote various papers concerning Pediculi and other parasitical insects. Some drawings, probably made about this period, were afterwards given by M. Cuvier to M. Lamarck, consisting of the most beautiful representations of Crustacea, forming twenty-three separate pages, and containing, among native marine Crustacea, several exotic species.

On coming to Paris, one of the first works communicated to his friends by M. Cuvier was a memoir, on the formation and use of a method in pursuing the study of natural history, and which he applied most happily to insects. This memoir was followed by several more especial labours, among which may be remarked, the description of a species of wasp (*Vespa nidulans*,) originally from Cayenne. In this paper he corrected an error made by Reaumur, who described and figured the Chalcis, a parasitical insect, living in wasps' nests, as the female of the *Vespa nidulans*. Soon after the appearance of the above, a very interesting memoir was published on the Cloportes (*Oniscus*, Lin.) in which some parts of the mouths of Crustacea were described for the first time. This was soon followed by several others; one of the most remarkable of which was a critical dissertation on the species of crabs known to the ancients, and on the names then given to them. In the month of September, 1797, M. Cuvier read, before the Institute, a very curious dissertation on the manner in which insects are nourished. Having established that the dorsal vessel

* A tribe of insects which takes its place in the great order, most commonly known under the name of Beetles.

is not a true heart, and that it does not furnish any means of circulation, it was necessary to account for the way in which the nourishing fluid is carried to all the organs. M. Cuvier proved that this juice passes through the cells of the intestinal canal, that it spreads over the interior of the body, and, encircling all parts, is secreted by simple imbibition. In this memoir he also stated, that the secreting organs of insects are not solid glands, as in all those animals which possess a heart and blood-vessels, but that they are composed of spongy tubes, sometimes folded back upon themselves, intimately united by tracheæ, and which may be always unrolled when time and patience are called in to aid the task. All these observations were attended with a result which is always gratifying in natural history; they established insects in a very natural and distinct class, and, like other well-directed labours, and well-founded remarks, these discoveries induced others to make the same researches, and a new field was opened to the Entomologist. If M. Cuvier was at any time doubtful, he did not hesitate saying so: he corrected himself when he had been mistaken; and even at this period, when he had all his fame to make, so far from being annoyed at the endeavours of others, he was the first to encourage them, to give them his honourable suffrage, and to receive as friends those who ventured into his province, in order to settle a doubtful point of science.

The mode of circulation in the Annelides was not better determined than that of insects, and M. Cuvier also turned his attention towards them. It was in pursuing this inquiry that he told anatomists, that the red colour of the liquid contained in leeches does not in the least proceed from the blood which the animal has imbibed, but that it is their own blood which circulates in four principal vessels. This important observation separated leeches, and animals analogous to them, from those with white blood; and caused Lamarck to give the class to which they belong the distinct name of Annelides. In M. Cuvier's great work on Comparative Anatomy, all the peculiarities belonging to insects, and other articulated animals, were afterwards given; and as he carried his labours into a wider expanse, he left their

external forms and classification to others, and confined himself solely to their internal structure.

After thus noticing the earliest scientific labours of M. Cuvier, which, in fact, were the preparations for all that followed, I think it best to proceed to that on which he based the great works of a later period, considering the Tableau Elémentaire, and the two editions of the Règne Animal, as different stages of the same work, and, with the Fossil Remains, and Natural History of Fishes, as the results of his discoveries in comparative anatomy. The collection of M. Cuvier's lectures on this subject is preceded by an introductory letter, addressed to M. Mertrud, in which the author submits the plan of his work, the necessity of such an undertaking, acknowledges the assistance afforded to him, and states the care with which he has revised the whole, previous to its publication.

The first lecture is a sort of preliminary discourse, and bears the general name of Animal Economy. It is, however, divided into five heads, viz. Organic Functions, Structure of the Organs, Differences of Organs, Affinities of Organs, and Division of Animals. From this first lecture I shall make a few extracts, which may enable my readers to form some judgment of the work.

After examining the nature of the principles of life, the learned author establishes the general conclusion, "that no body exists which has not once formed part of a body similar to itself, from which it has been detached; or, that all bodies have shared the life of another body, before they themselves exercise vital motion; and it is even by the effect of the vital force, to which they then belonged, that they have become sufficiently developed to support an isolated life." From this conclusion may be deduced the axiom, "that life springs from life, and no other life exists than that which has been transmitted from one living body to another, in uninterrupted succession." . . . . . "Being unable to go back to the first origin of living bodies, we have no resource," says M. Cuvier, "but to seek information concerning the true nature of the forces which animate them, in an examination of their composition; that is to say, of their substance, and the combination of elements which composes this substance or tissue. For although this

tissue, and this combination, are in some measure the results of the action of the vital principles which gave them being, and continue to preserve them, it is evident that these principles can only have in them their source and their foundation. Thus, if the first assemblage of these mechanical and chemical elements of a living body has been effected by the vital principle of the body from which it descends, we cannot but find in it a similar force, and the causes of this force, in order to exercise a similar action in favour of the body, which, in its turn descends from it. But, although our knowledge of the composition of living bodies is too imperfect to deduce clearly from it the effects they present to us, we may, at any rate, make use of that which we do know, in order to recognize these bodies, even when inactive, and to distinguish their remains after death; for in no unorganized bodies do we find fibrous or cellular tissue, or that multiplicity of volatile elements which forms the characters of organization, whether actually living, or having lived. Thus while inanimate solids are only composed of polyhedral particles, mutually attracted by the faces they present: while they only resolve themselves into a limited number of elementary substances; while they are only formed by a combination of these substances, and an aggregation of these particles; while they only increase by the juxta-position of new particles, which envelope the first mass by their layers; and while they are only destroyed by some mechanical or chemical agency, which alters their combinations; on the other hand, organized bodies, composed of a tissue of fibres and plates, the intervals of which are filled with fluids, resolve themselves almost entirely into volatile substances, spring from bodies similar to themselves, from which they are only separated when they can act by their own strength, assimilate themselves incessantly with foreign substances, and, introducing these substances between their particles, increase by internal force, and at length perish by this internal force, by the effects even of their vital principle. To originate in generation, to increase by nutrition, and to end by death, are the general and common characters of all organized bodies; but if several of these bodies only exercise these and their necessary functions, and have only the organs requisite for this compara-

tively limited part in creation, there are many others which exercise peculiar functions, which not only require organs particularly adapted to them, but induce a modification in the general functions. Of all these peculiar functions, feeling and moving at will are the most remarkable, and most influence the other functions. Independent of the chain which links these two faculties, and the double set of organs which they require, they yet carry with them several modifications into the functions common to all organized beings, and these modifications more particularly belong to and constitute the nature of animals."

As one example, among many others which the limits of this volume will not allow me to insert, I shall cite M. Cuvier's general description of digestion. "Vegetables, which are attached to the ground, absorb the nutritive parts of the fluids which they imbibe by means of their roots. These roots divided to infinity, penetrate into the smallest spaces, and, as it were, seek at a distance for nourishment to the plant to which they belong; their action is tranquil and continuous, and is only interrupted by a drying-up of the juices in the soil which are necessary to them. Animals, on the contrary, not being fixed, and constantly changing place, must carry with them the provision of juices essential for their nutrition; therefore they have received a cavity in which their alimentary substances are placed, into the cells of which open the pores, or absorbing vessels, and which, according to the forcible expression of Boerhaave, are true internal roots. The size of this cavity, and its orifices, permit several animals to introduce solid substances into it; these require mechanism to divide them—liquids to dissolve them; and nutrition no longer commences by the immediate absorption of substances as they are supplied by the ground and the atmosphere; it must be preceded by a multitude of preparatory operations, the whole of which constitute digestion."

From the second division of this first lecture, which treats of the organs of which animals are composed, I shall select the passage concerning the senses, as most interesting to the general reader. After exposing the nervous system in its different bearings; after noticing the cellular tissue, the medullary substance, the muscles, the bones, the joints, the

chemical analysis of various part of the body, &c., M. Cuvier proceeds:—"We perceive the action of external bodies on our own, in proportion as the nerve which is affected by them communicates with the spinal chord, or common bundle of nerves, and this with the brain; a ligature, or a rupture, by intercepting the physical communication, destroys the feeling. The only sense which belongs to all animals, and which exercises its influence over nearly the whole of the surface of the body of each, is the touch. It resides in the extremities of the nerves which are distributed through the skin, and makes known to us the resistance of bodies and their temperature. The other senses seem to be but more elevated modifications of the touch, and are susceptible of more delicate impressions. Every one knows that they are the sight, which resides in the eye; the hearing, which resides in the ear; the smell, which resides in the membranes inside the nose; and the taste, the seat of which is in the teguments of the tongue. These are all situated at the same extremity of the body which contains the brain, and which we call the head, or chief. Light, vibrations of the air, volatile emanations floating in the atmosphere, and saline particles soluble in water, or the saliva, are the substances which act on these four senses, and the organs which transmit their action to the nerves are especially adapted to each. The eye presents transparent lenses to the light, which break its rays; the ear offers membranes and fluids to the air, which receive its agitations; the nose draws up the air which goes to the lungs, and in its passage attracts the odorous vapours contained in it; and, lastly, the tongue is furnished with spongy papillæ, which imbibe the savoury liquids offered to it. It is by these means that we are conscious of the things and circumstances which pass around us, and of the vast number of those which pass within us; and, independent of the internal pains which warn us of some disorder in our organization, and the sufferings occasioned by hunger, thirst, and fatigue, it is by means of these senses that we feel the emotions of pity, the agonies of fear, &c. These latter sensations are rather the effect of a re-action on the nervous system than immediate impressions; and as the sight of some imminent danger makes us fly without the will having had time to act, it is also involuntarily that we feel transport at the sight of a

beloved object, or shed tears at the sight of virtue in distress. These effects of the nervous system arise from the numerous communications of particular nerves, called sympathetic, existing between divers ramifications of the general trunk; and by means of which impressions are more rapidly transmitted than by means of the brain. These knots of nerves, which, when enlarged, bear the name of ganglions, are a species of secondary brains, and are always of greater size, and in a greater number, as the proportion of the principal brain is less considerable."

When, in the third division, M. Cuvier treats of the differences of the organs of animals, he observes, that the circulation of the blood furnishes the most important variations. "First, there are animals which have no blood, such as insects and zoophytes; and, secondly, those which have it possess it in a double or simple mode. That is called double circulation when no part of the venous blood can re-enter the arterial trunk until it has made a certain circuit in the organ of respiration, which must be formed by the expansion of two vessels, the one arterial and the other venous, nearly of equal size, but shorter than the two principal vessels of the body. Such is the circulation of man, mammalia, birds, fishes, and many mollusca. In simple circulation, a great part of the venous blood re-enters the arteries without passing through the lungs, because this organ receives but one expansion from one branch of the arterial trunk. Such is the circulation of reptiles. There are yet other differences in the existence and position of hearts, or muscular organs destined to impel the blood. In simple circulation there is never more than one; but when the circulation is double, one part is sometimes seated at the base of the principal artery, and the other at that of the pulmonary artery; and sometimes there is only one of these two parts. In the first case, the two hearts, or, rather the two ventricles, may be united in one single mass, as in man, mammalia, and birds; or they may be separated, as in the cuttle-fish. When there is only one ventricle, it is either placed at the base of the artery of the body, as in snails and other mollusca, or at the base of the pulmonary artery, as in fishes.

"The organs of respiration are equally fertile in remarkable differences. When the element which is to act on the

blood is the atmospheric air, it penetrates even into the interior of the respiratory organ; but when it is water, it simply glides over a surface, more or less multiplied. These surfaces, or leaflets, are called branchiæ, and are found in fishes, and many of the mollusca. Instead of leaflets, there are sometimes tufts, or fringes. Air penetrates into the body by one or several orifices. In the first instance, which is that of all animals with lungs, properly so called, the channel which receives the air is subdivided into a multitude of branches, which terminate in as many little cells, generally collected into two masses, which the animal has the power of compressing or dilating. When there are several openings, which we see only in insects, the vessels which receive the air are ramified to infinity, in order to carry it to every part of the body without exception, and this is what is called respiration by means of tracheæ. Lastly, the zoophytes, with the exception of echinodermes, have no apparent organ of respiration."

In the third portion of this opening lecture, the affinities of organs are described, and their manner of acting on each other. "Of what use," says M. Cuvier, "would sensation be to us, if muscular force did not help it, even in the most trifling circumstances? What use could we make of touch, if we could not carry our hands towards the palpable object? and what should we behold if we could not turn our eyes or head at pleasure? It is on this mutual dependence between the functions, and on this reciprocal aid, that the laws are founded which determine the affinities of the organs of animals; which affinities are as necessary to them, as metaphysical or mathematical laws are to other parts of the creation. For it is evident, that a suitable harmony between those organs which act upon each other, is a necessary condition to the existence of the being to which they belong; and that if one of these functions were modified in a manner incompatible with the modifications of others, that being could not exist. Modern experiments have shown, that one of the principal uses of respiration is to re-animate muscular force, by restoring to the muscular fibres their exhausted irritability, and, in fact, among the animals which breathe the air in a direct manner, we see those with double circulation, and not an atom

of whose blood can return to the parts till after it has been respired. Mammalia and birds not only live always in the air, and move in it with more force than other animals with red blood, but each of these classes enjoys the faculty of moving, precisely according to the quantity of its respiration. Birds, for instance, are as much impregnated with air within as without; not only the cellular parts of their lungs are very considerable, but these organs have bags, or appendices, which are prolonged throughout the body. Thus, in a given time, they consume a much greater quantity of air in proportion to their size than quadrupeds; and doubtless it is this which gives to their fibres a prodigious and instantaneous force, and which renders their flesh fit to act powerfully on those violent movements which sustain them in the air, by the simple vibrations of their wings."

In the concluding part of this first lecture, treating of the Division of Animals, M. Cuvier sums up the great characters of the animal kingdom, proceeding from Mammalia to Zoophytes, or, in other terms, the whole range of animal life, from man, to the simple pulp which scarcely merits the name of an organized being. From this I do not find it possible to cite any isolated passage, the whole is so beautifully linked together; but the perusal of this portion alone is calculated to enlarge our ideas respecting creation, to give us new thoughts concerning the common occurrences of life, and to lead us to a train of reflections, which mount upwards to the great Source of that life which is presented to us in so many extraordinary and elaborate forms. The rest of the work consists of a description of these forms, external and internal; the minutest details concerning the use of each organ are also given to us; the chemical composition of each part is explained; the greater or lesser developement of this wonderful machinery and combination is set forth; the total absence of some parts; the results of these differences, and the action of the whole in the vast field of nature, all are laid before us with a clearness and precision that are truly admirable. For, although endowed with imagination, brilliancy of ideas, and eloquence of language, M. Cuvier has in this, as well as his other scientific labours, affirmed only, "that which he has seen and touched," and, far from wishing to persuade by other means than positive evidence,

he presents his readers with nothing that can draw the mind from the contemplation of reality. From this work we may deduce certain general rules, certain axioms, which may apply to every part of animal life, in every corner of the world. Let us take the single instance of a person shipwrecked in an unknown sea, and cast up by the waves on a shore wholly strange to him. Towards the means of life are directed the efforts of returning consciousness: vegetables will first offer themselves to his notice, as most easily procured; but an anatomist will know, that his teeth and organs of digestion were given to him that he might repair the exhaustion of his frame by animal substances, and that without these he will not be so healthy and strong as nature intended he should be. A single bone, accidentally lying in his path, will tell him, if this comparatively desert country contains animals against which he must provide means of defence; but what will be his joy, if this single bone informs him, that ruminating animals exist there. Milk, flesh, beasts of burden, skins for bedding and clothing, at once present themselves to his view. Furnished with such sources of comfort, he is prepared to avoid the destructive, to ensnare the swift, and to make use of the docile; and weaker in bodily force, perhaps, than the animals by which he is surrounded in his desolate habitation, yet, by the superiority of his intelligence, he becomes their sovereign.

To say precisely what this great treatise displays, in an extent of five thick octavo volumes, each containing from five to six hundred pages; to give an exact list of every thing it embraces, would be to offer a dry catalogue of names, which would not be generally understood; but in order to show the manner in which it is conducted throughout, and how thoroughly it carries the student into every portion of an organized body, I submit the way in which the head is treated. The different bones which form the box called the skull, with their shapes, are first detailed; then follow the articulation of the head upon the spine, and its consequent movements, the muscles which aid these movements, and give force and motion to the jaws; the unequal surfaces of the interior of the skull; the holes of the skull; the bones of the face; the brain and its

coverings; the nerves which proceed from it; the different parts of the eye, and its consequent vision; the muscles which move the eye; the eyelids; the air, and its complicated parts; the muscles and nerves belonging to it; the movements of the lower jaw; the teeth in all their stages; the salivary glands; the bones of the tongue, its muscles, and the tongue itself, &c. What a task thus to carry us through all creation! And yet the noble author considered this merely as a foundation for one of still greater magnitude, the preparations for which he had been carrying on during the whole of his active life, and the results of which preparations were shortly to have been given to us, had not death suddenly arrested his progress—had not the inscrutable will of the Almighty suddenly closed upon us the way which this great genius had opened to our progress.

To the above work was awarded one of the "prix décennaux," instituted by Napoleon in 1810, an account of which may be acceptable to the English reader. Wishing at that time to divert the public attention from passing events (the Spanish campaign, &c.,) the Emperor issued a decree, stating, that as he was desirous of rewarding and encouraging every species of study and labour, which could contribute to the glory of his empire, he had resolved to bestow prizes of money, every ten years, on the 9th of November, on the best works in every branch of science, arts, and literature. The prizes were to be proclaimed by the Minister of the Interior, and the successful candidates were also to receive a medal from the hands of the Emperor himself, in presence of the princes, the dignitaries of the state, the great officers of the University, and the whole body of the Institute, assembled at the Thuilleries. All labours having sufficient merit were to be examined by a jury and judges, composed of the presidents and perpetual secretaries of the four classes of the Institute. Each class to make a catalogue raisonné of the works put to the suffrage; those deemed worthy of approaching the prizes, to receive honourable mention; but those of sufficient merit, in the opinion of the judges, to obtain the prize, to be noticed with still greater detail. All the reports and discussions to be given to the Minister of the Interior, by whom they were to be kept entirely secret from the public. No judge to be al-

lowed to pronounce on the merits of his own productions. These prizes soon became a universal theme; an exhibition of the pictures painted for them took place in the Louvre, and every body was more or less interested. The juries sat, the judges pronounced sentence; and because the Comparative Anatomy proceeded from one of the latter, though it received the praise due to it. the prize for this subject was awarded to another work. Delay took place, and the Emperor deemed a revision of the judgment necessary. During this revision M. Cuvier was in Italy, and advantage was taken of his absence to change the sentence, and recommend the prize to be bestowed on him. The greatest freedom was given to discussion, in the idea that all would be strictly confidential on the part of the government; when, to the astonishment of every one, the whole of the reports given to the Minister of the Interior was published in the Moniteur. Could any thing be better calculated to accomplish the desires of his Imperial Majesty? No sooner did the affair languish, and people cease to talk of it, from the conviction that all was done, than he set the whole capital in a turmoil of bickering and dispute; for every one has his own cause, or that of his protégé to defend. The result proved it to be one of those masterstrokes of policy of which Napoleon was so capable; and what was his intention throughout is very evident, for the prizes were never even mentioned afterwards. The reports, however, have been collected, and form a very curious quarto volume.

From the writings on Comparative Anatomy, I naturally turn to that vast collection of the subjects themselves, formed by M. Cuvier at the Jardin des Plantes; and when I repeat, that this collection was not only the principal source from which he drew the materials for the great work just mentioned, but was the basis for most others, it is scarcely necessary for me to enter into many details concerning it: to its leading features I shall therefore confine myself. It is contained in fifteen rooms of various sizes; and in these fifteen rooms we may verify almost every fact stated by M. Cuvier, by actual inspection; and we are lost in admiration, not only at the vast operations of nature, but at the mind which appreciated them, and made them known to his fellow-men. The collection should be viewed by beginning

at the room up-stairs, which is farthest from the entrance, and which communicates with M. Cuvier's house. In this are the Mollusca, and at once assuming the character of a person wholly ignorant of anatomy, I cannot do better than describe the probable impressions of this person, as he follows the suit of rooms. His astonishment will be first excited by finding, that such mis-shapen masses as the common oyster possess liver, heart, lungs, &c.; he will wonder at the various peculiarities presented by the inhabitants of the shells he has been accustomed to find on the sea-shore, and to consider as mere toys; he will be surprised at the number of those insects which exist only on living bodies, and all disgust will be lost, in contemplating the variety of their forms. The two next rooms will present to him that complicated machinery which is contained in beings of a higher order, by which they re-animate their strength; by which, in fact, they live. A step farther, and he will see the muscles fortified and brought into action by that very machinery which he has been examining. But the organs of the senses will have previously arrested his attention; for he there beholds in the eye the very powers he is exercising, and which are affording him such infinite gratification. The ear, which gives so much pleasure, and frequently so much pain; the voice,* by which we impart our own feelings; the reason why the power of uttering those delicious tones which captivate and soothe us into harmony, those impassioned sounds which cheat us into an entire forgetfulness of aught but ourselves; those accents of fury which frightens us to agony, or those grave and calm communications of the mind, are only given to man; are all there, and wonder succeeds to wonder, leaving it difficult for the stranger to decide in which room he finds most interest. That part of the human frame from which we suf-

* After reading a very interesting Memoir on the organs of the voice in birds, before the Institute, in 1798; a very celebrated anatomist present exclaimed, that M. Cuvier had been wrong in stating, that physiologists had not yet agreed concerning the mechanism of the human voice, which some compared to a wind, and others to a stringed instrument; for that this question was now decided in favour of the wind instrument. "You are deceived," involuntarily cried another equally learned anatomist; it is a stringed instrument." This second observation caused a general smile, for it proved, most unexpectedly, the truth of M. Cuvier's assertion.

fer most, the teeth, and dentition, in all its stages, and in all animals gifted with it, are laid open to his view, with the important characters they afford for classification, and the progress made from the concealment of the tooth in its socket at the birth of the infant, to the filling up of the empty socket into one solid mass, in the aged person. Close to human teeth are the enormous and solitary grinders of the two living species of elephants, the unchanging ivory of the tusks of the walrus, the fearful weapons of the lion and the tiger, and the sharp incisors of the bat. How surprised will the novice be, to find, that the head, which he has been accustomed to consider as one mass of bone, is, in mammalia, composed of several parts, and in fishes, divided to infinity. Deeply will he reflect, when, in an adjoining room, he follows, in the entire skull, the gradations of the frontal bone, which mark the most intelligent of mankind, to the animal whose only instinct is that of procuring food; and on descending the staircase, to find himself in the midst of human skeletons, in their varieties, from the Hottentot Venus to the graceful being of a European drawing-room. For a moment, his feeling of admiration at the works of God, are interrupted by a contempt of that external beauty which has hitherto been so precious in his eyes; but the great room, if I mistake not, will banish every sentiment but those of awe and reverence; for he will there find himself walking amid the remains of the most gigantic of the earth, and the enormous monsters which inhabit the depths of the ocean. The solid and ponderous members of the elephant, the long neck of the giraffe, the massive bulk of the whale, and the hand-like fins of the dolphin, the strength and vigour of the horse, the solemn force of the bull, and the light and elegant action of the antelope, may all be traced in these framed works of creation; and as the visitor quits the galleries, I think I cannot be wrong in supposing, that he will own his personal insignificance in the great scale, his conviction of the adaptation of nature to all the purposes for which it was intended, and will learn to respect that being of his own species, who, by his influence, his personal exertion, amassed, and, by his wisdom, set before him, the marvellous works which he has just been contemplating.

With so perfect a knowledge of the formation of living

beings, it scarcely seems surprising that M. Cuvier should have made those deep researches among the fragments of the former inhabitants of the globe, by which his great name has been associated with every labour relative to the construction of the earth. For although the researches of De Saussure, De Luc, Pallas, and Werner, appeared to have brought geology to the highest perfection it could attain, it was M. Cuvier who gave the impulse, who made a science of fossil organic remains. His powerful comprehension, at the first glance, measured the extent of the science, appreciated its importance, and foresaw the light it would shed over the formation of our planet. Already, in 1796, he read a Memoir, at the Institute, which contained his suspicions, that no species of those fossil remains, so abundant in the northern parts of the world, belonged to animals now existing. He even then thought that they had formed beings which had been destroyed by some revolution of the globe, now replaced by others, perhaps equally to be destroyed. With a view of ascertaining the truth of these suppositions, he sought every means of determining the species, genera, and classes of these relics, by an unwearied inspection of all that could be found, by making himself acquainted with the discoveries previously made, by exactly ascertaining the localities where these remains had been dug up, the nature of the soils in which they had been enveloped; and he eloquently invited all the savans of Europe to aid him in his great enterprise, impressing on them the importance of these researches, and requesting them to report their labours to him, which labours he promised to state in his work, and which promise he faithfully performed. In the preliminary Discourse of the Fossil Remains (which has been published in a separate form, has undergone several editions, and been translated in almost every modern language, under the title of "Theory of the Earth,") treating of the revolutions of the globe, he says, "Antiquary of a new species, I have been obliged at once to learn how to restore these monuments of past times, and to decypher their meaning. I have been obliged to collect and bring together the fragments which compose them into their primitive order; to reconstruct these ancient beings; to re-produce them with their proportions and characters; and, lastly, to compare

them with those which now live on the surface of the globe."

To this task did M. Cuvier devote a large portion of his life, and his first care was, to determine the living and fossil species of elephants, which form the subject of the first volume. The plan he adopted was, to describe the osteology of the best known species; to point out the countries they inhabit; to ascertain how many species have been found; and, then, to compare them with those bones which are in a fossil state. He himself visited many of the spots whence these remains had been taken; such as England, Holland, Germany, and Italy; and others were brought to him, in a order that he might be the eye-witness of every thing which he endeavoured to prove. These researches entirely set at rest the question concerning the existence, or, rather, the finding of human fossils. Such relics have never, as yet, been discovered; and the Gaudaloupe skeletons, which have been so much talked of, had probably been deposited in that place after shipwreck; the soil by which they were enveloped being of too recent a formation to admit of any idea that they were true fossils, and the positions in which they laid, not allowing of the supposition that they had been purposely interred there. Also, the pretended histories of giants, are, in this volume, entirely refuted; and amusing accounts are there given of the ignorance and credulity which caused them to be so generally circulated; but on this occasion, as, in fact, all others, M. Cuvier's own words are the best, and he writes as follows:—"The bones of elephants having more resemblance to those of man than they have to those of other animals, even skilful anatomists have been often tempted to take them for human remains and this probably occasioned the pretended discoveries of the tombs of giants, mentioned by ancient authors, and those of the middle ages." This example was unfailingly followed by more modern writers, for the marvellous is delicious food to the minds of most people. The great propagator of the *on dits* of natural history, Pliny, was not, of course wanting on this occasion; and he speaks of the supposed body of Orestes as being thirteen feet three inches long. Few countries have been without these fables, and (to continue M. Cuvier's account) "one of the most celebrated was that of

Teutobochus, in the reign of Louis XIII., which occasioned a number of famous disputes, in which the actors were much more anxious to abuse each other than to establish the truth. One of them, however, named Riolan, for a person who had never seen the skeleton of an elephant, showed, with considerable skill, that these bones probably belonged to such an animal. It would appear, as far as the fact can be now ascertained, that on the 11th of January, 1613, some bones were found in a sand pit, near the castle of Chaumont, or Langon, between the towns of Montricaut, Serre, and Antoine. Part of them were broken by the workmen ; but a surgeon of Beaurepaire, named Mazurier, showed those which remained whole for money, in Paris, and several other places, and in order to excite further curiosity, he circulated a pamphlet, in which he asserted that they had been found in a sepulchre, thirty feet long, on which had been inscribed, 'Teutobochus Rex.' It is well known that this was the name of the King of the Cimbri who fought against Marius ; and, to further this supposition, M. Mazurier added, that fifty medals were found in the same place, bearing the effigy of this Roman consul, and the initials of his name. The surgeon, however, was accused of having employed a jesuit, named Tournon, to write this pamphlet, and who forged the history of the sepulchre and the inscription. The pretended medals bore Gothic instead of Roman letters, and it seems that Mazurier never justified himself from these accusations of imposture." The bones were afterwards all recognised as belonging to elephants ; but, notwithstanding this detection, there was no end to the stories about giants, and each country possessed its own marvellous tale. The city of Lucerne took for supporters to its coat of arms pretended giants found in 1577, near that place, and close by the cloister of Reyden, in a hole, which was accidently formed by the tearing up of a large oak by the roots, in a heavy gale of wind. The Council of Lucerne sent them to Felix Plater, a physician at Bâle, who had a drawing made of a human skeleton, the size which he thought these bones indicated. It measured nineteen feet, and was sent, with the bones, back to Lucerne, where the drawing is still preserved. It, and the bones still in existence, were recently inspected by M. Blu-

menbach, who recognised the latter as belonging to an elephant.

But the champions of human fossils were not contented with making them out of the bones of elephants; and having found some animal remains imbedded in slate, a few leagues from the Lake of Constance, a learned physician wrote a particular dissertation on them, entitled, "L'Homme Témoin du Deluge."—"It is not to be refuted," said he, "here is the half, or nearly the whole of the skeleton of a man, even the substance of the bones, and, what is more, the flesh, and parts still softer than the flesh, are incorporated with the stone. In short, it is one of the rarest relics we possess of that cursed race which was buried under the waters." The assertions of the learned Doctor, however, vanished before the penetrating eye of M. Cuvier, who, judging from the relative form and proportion of the bones, decided that this fossil was no other than that of an aquatic salamander, of a gigantic size and unknown species. In 1811, having the power of examining the stone which contained this "witness of the deluge," he, in presence of several distinguished savans, and with the drawing of a salamander before him, at every stroke of the chisel verified his assertion.

But to return to the elephants: Asiatic Russia swarms with these monstrous remains, and the inhabitants explain the phenomenon by supposing that they belong to some living subterraneous animal partaking of the nature of the mole, and which they call Mammout, or Mammoth. This fable also extends to China. Besides the relics of true elephants, found in America, there have been yet two other gigantic animals discovered; the Mastodon and the Megatherium, the former bearing great affinity to the elephant. These animals have also formed a foundation for many absurd stories, all of which have been refuted by M. Cuvier's luminous researches: he states, "that the great animal of Ohio was very similar to the elephant in its tusks and its osteology, with the exception of its jaws; that it very probably had a trunk, but that in height it did not exceed the elephant. It was, however, longer than that quadruped, its limbs thicker, its belly of less volume; but, notwithstanding the little importance of these differences, the

peculiar structure of its grinders suffices to establish it as a separate genus. It was nourished nearly in the same manner as the hippopotamus and wild boar, but it did not occasionally live in the water, like the former. It preferred roots, and the fleshy parts of vegetables, which species of food led it to seek an open or marshy country." The bones of the Mastodon Angustidens are much more common in North America than elsewhere, and, perhaps, those of the great Mastodon exclusively belong to that country. They are better preserved and fresher than any other known fossils, and, nevertheless, there is not the least authentic testimony calculated to make us believe, that there is still in America, or elsewhere, any living individual. Therefore, the accounts published, from time to time, in the American papers, concerning those that have been met with wandering through the vast forests, or over the immense plains of this continent, have never been confirmed, and may be consequently regarded as mere fables.

After having acquired vast experience in the connection of organized beings with the soils in which they have been preserved, and having decidedly proved, that the more ancient the formation, the more distant are its organic remains from those now existing, M. Cuvier determined to observe and describe all those contained in a limited circumference round Paris. Already had he employed an intelligent workman,* whom he himself paid, in the quarries at Montmartre, to collect the bones for him which were almost daily found in that spot. He spared no expense, rewarded all contributors with the greatest liberality, and joyfully spent considerable sums on that collection, which, when his publications had given it the highest value, he afterwards presented to the Museum of the Jardin des Plantes, only receiving in return, duplicates from the public library, of those works which were wanting in his own magnificent assemblage of books. Before M. Cuvier found an opportunity of publishing his discoveries, by means of the Annales du Muséum, and when the expense of employing professed artists would have been to much for his means, he not only drew, but engraved the plates himself; which precious proofs

* Named Varin.

of his talents are scattered through the work of which I am now speaking, but are more particularly contained in the third volume of the last edition.* This edition consists of five quarto volumes, two of which are divided into two parts; and among the numerous lights thrown upon living objects, and on the construction of the earth, we find the resurrection of numerous species of mammalia, birds, reptiles, &c., making in all 168 vertebrated animals, which form 50 genera, and of which fifteen are new. They have been named by M. Cuvier, placed by him in the range of created beings, and belong to every order except Quadrumana, of which, as well as the human race, not a single relic

* Had I no motive of friendship and esteem to induce me to make known the merits of M. Laurillard, the secretary of M. Cuvier, it would be but justice to mention him here, as one who was associated with his patron in these and all succeeding labours, and who proved that the great anatomist carried his discrimination even into the mental organization of humanity. The manner in which this association was formed is too interesting to be passed over in silence. M. Laurillard, also from Montbéliard, left his native place in order to cultivate his talents for design in the capital, with a view of becoming professional. He was there introduced to M. Frederic Cuvier, for whom he executed some drawings. He also made one or two for M. Cuvier, without particularly attracting his notice. One day, however, M. Cuvier came to his brother to ask him to disengage a fossil from its surrounding mass, an office he had frequently performed. M. Laurillard was the only person to be found on the spot, and to him M. Cuvier applied in the absence of his brother. Little aware of the value of the specimen confided to his care, he cheerfully set to work, and succeeded in getting the bone entire from its position. M. Cuvier, after a short time, returned for his treasure, and when he saw how perfect it was, his ecstacies became incontrollable; he danced, he shook his hands, he uttered expressions of delight, till M. Laurillard, in his ignorance both of the importance of what he had done, and of the ardent character of M. Cuvier, thought he was mad. Taking however his fossil foot in one hand, and dragging M. Laurillard's arm with the other, he led him up-stairs to present him to his wife and sister-in-law, saying, "I have got my foot, and M. Laurillard found it for me." It seems, that this skilful operation confirmed all M. Cuvier's previous conjectures concerning a foot, the existence and form of which he had already guessed, but for which he had long and vainly sought. So occupied had he been by it, that when he appeared to be particularly absent, his family were wont to accuse him of seeking his fore foot. The next morning the able operator and draftsman was engaged as secretary; and M. Cuvier not only attached to himself a powerful coadjutor, but an affectionate and faithful friend, devoted to him during life, and now finding his greatest happiness in doing and saying that which he thinks will most honour the memory of one so loved and revered. He is appointed, by the will of M. Cuvier, to finish and publish all the drawings they had made together for the great work, which he called the "Grande Anatomie comparée,"—and most fervently must all followers of the science wish for its appearance.

has yet been found in a fossil state. All their localities have been stated, and all the collections mentioned where they have been preserved, with a laborious fidelity and extraordinary erudition. He had, however, many difficulties to conquer, among which was that of the incredulity of others, who, being ignorant of the laws of organization, of the necessary co-existence of certain forms, did not comprehend how it was possible to re-establish an animal from the fragments of its bones scattered through the layers of the earth. How he triumphed will be gathered from the following extract from a letter written to Dr. Duvernoy, a few days after a meeting in which he had been obliged to discuss some particular objections addressed to him. He thus wrote (1806,)—"They have just brought me the skeleton of an anoplotherium, which is almost entire, taken from Montmartre, and nearly five feet long. *All my conjectures have been verified*, and I find that the animal had a tail, as long and as large as that of a kangaroo, which completes its singularities." For the furtherance of his inspection of the neighbourhood of Paris, M. Cuvier associated the learned geologist, M. Brongniart, with him in his researches, who more particularly confined himself to fossil mollusca, and comparative observations concerning other countries. The principal geological result of these inspections was to make known the fresh water deposits above the chalk, each deposit covered by a marine deposit; irrefragable proofs of several irruptions and alternate retreats of the sea, in the basin of Paris and its environs, since the period of the chalk formation. This discovery was solely due to M. Cuvier, and it was at Fontainebleau that the truth suddenly flashed across his mind. "Brongniart," he cried, "j'ai trouvé le nœud de l'affaire." "Et quel est-il?" asked M. Brongniart. "C'est qu'il y a des terrains marins, et des terrains d'eau douce," replied M. Cuvier.* It is most interesting to see how after many years of uninterrupted and difficult investigation, of profound study and meditation, M. Cuvier, in his beautiful preliminary Discourse, sums up the facts which afford indisputable evidence of these great phenomena. "I think," said the

* "I have solved the difficulty."—"And what is it?"—"It is, that there are fresh water earths, and earths of salt water formation."

learned author, with MM. De Luc and Dolomieu, "that if there be any thing positive in geology, it is, that the surface of our globe has been the victim of a great and sudden revolution, the date of which cannot be carried back further than from five to six thousand years; that this revolution has buried and caused the disappearance of countries formerly inhabited by man, and animals which are now known; and, on the other hand, has exposed the bottom of the water, and has formed from that the countries now inhabited .... but these countries which are now dry had already been inhabited, if not by man, at least by terrestial animals; consequently one preceding revolution at least must have covered them with water, and, if we may judge by the different orders of animals of which we find the remains, they had perhaps been submitted to two or three irruptions of the sea; and these irruptions, these repeated retreats, have not all been slow or gradual. The greater number of the catastrophes which brought them about have been sudden, a fact easily proved by the last of all, the traces of which are most manifest, and which has still left in the North, the bodies of large quadrupeds, seized by the ice, and by it preserved, even to our own times, with their skin, their fur, and their flesh. Had they not been frozen as soon as killed, putrefaction would have decomposed them; and this eternal frost has only prevailed over the places inhabited by them, in consequence of the same catastrophe which has destroyed them; the cause, therefore, has been as sudden as the effect it produced."

The ideas of M. Cuvier on the relative ages of the strata of deposited soils, extending even to different chains of mountains, have led to the present system adopted by geologists, and from them it may be concluded, that "all these layers of deposited soils having been necessarily formed in a horizontal position, the most ancient are those which have been more or less raised towards a vertical line by some catastrophe, and the most recent are, on the contrary, the horizontal layers; because, having preserved their original situation, it is evident that they could only be formed after the revolution which changed the position of those which are oblique, which they more or less cover, and on which they rest."

One of the most important questions treated of in this work is that of the alteration in animal forms; whether the forms of lost animals, which differ so much from those which are now living, really indicate species and genera distinct from species and genera now existing, or if time alone has modified the primitive forms, so as to attain the present form. The examination of this question alone would give a satisfactory answer (could they be convinced) to those who believe in the indefinite alteration of forms in organized beings, and who think that, with time and habits, each species might have made an exchange with another, and thus have resulted from one single species. However extraordinary and incomprehensible this system may appear to be, which would take away the basis on which science rests, and which could only be established by a definition of the possible duration of a species in its original state, M. Cuvier, seriously refutes it, and destroys it with one objection, that of not finding intermediate modifications between an animal of the former and present world, even when it approaches it most nearly. He gives the definition of a species, proves the constancy of certain conditions of the forms which characterize it, and presents a table of the variations which it is possible for it to undergo. In short, he demonstrates, by a scrupulous examination of the skeletons of mummies, that the animals living in Egypt two or three thousand years back, when compared with those which now breathe on this classic ground, have not, in the course of so many ages, undergone any important changes of form; that even among the wild animals there has been no alteration in the skeleton which could characterize one race or variety. "There is nothing," to use M. Cuvier's own words, "which can in the least support the opinion, that the new genera which I and other naturalists have discovered or established among fossils, the Paleotherium, the Anoplotherium, &c., have been the parent stocks of some of the present animals, which only differ from them in consequence of other soil, climate," &c. Further on he continues,—"When I maintain that stony strata contain the bones of several genera, and moveable earths those of several species which no longer exist, I do not pretend that a new creation has been necessary to produce the existing species. I merely say

that they did not exist in the places where we now see them, and that they have come from elsewhere. For example, let us suppose that a great irruption of the sea shall now cover the continent of New Holland with a mass of sand, or other débris; the bodies of kangaroos, wombats, dasyuri, perameles flying phalangistæ echidnæ, and ornithorynchi, will be buried under it, and it will entirely destroy every species, of these genera, since none of them now exist in other countries.

"Let this same revolution dry up the sea which covers the numerous straits between New Holland and the continent of Asia: it will open a way for the elephant, the rhinoceros, the buffalo, the horse, the camel, the tiger, and all other Asiatic quadrupeds, who will people a country where they have been hitherto unknown. A naturalist afterwards living among them, and by chance searching into the depths of the soil on which this new nature lives, will find the remains of beings wholly different. That which New Holland would be in the above case, Europe, Siberia, and a great part of America are now, and, perhaps, when other countries, and New Holland itself, shall be examined, we shall find that they have all undergone similar revolutions. I could almost say, a mutual exchange of productions; for, carrying the supposition still further, after this transportation of Asiatic animals into New Holland, let us imagine a second revolution, which shall destroy Asia, their primitive country; those who afterwards see them in New Holland, their second country, will be as embarrassed to know whence they came, as we can be now to find the origin of our own."

I am aware that the extent of the work of which I am speaking can scarcely be recognized in the few extracts I am able to make, and it is with a sort of fearfulness that I cite a few isolated passages, for fear of injuring the rest. There must, however, necessarily be a degree of imperfection where we can only judge by parts, detached from a whole, which is so beautiful when entire; and again impressing on my readers that this volume is intended to lay before them the man himself, and describe his labours, not to review or criticise them, I have less hesitation in proceeding.

The gradual developement of great facts, the doubts existing in the mind of the author at certain periods of his progress, the confirmation or dissipation of these doubts, the methods employed to ascertain the truth, the sacrifice of one part of a fossil to verify another, the ingenious contrivances for separating the remains from the surrounding mass, the application of plaster models, which not only brought him faithful impressions of those which he could not procure, from distant countries, but distributed his own to every part of the world; are all related in the course of the work with the most beautiful simplicity. When speaking of the sarigue*, M. Cuvier says, "This rich collection of the bones and skeletons of the animals of a former world is doubtless an enviable possession. It has been amassed by nature in the quarries which environ our city, as if reserved by her for the researches and instruction of the present age. Each day we discover some new relic; each day adds to our astonishment by demonstrating, more and more, that nothing which then peopled this part of the globe has been preserved on its present surface; and these proofs will doubtless multiply in proportion as our interest in them is increased, and we are consequently induced to give them more of our attention. There is scarcely a block of gypsum, in certain strata, which does not contain bones. How many millions of these bones have been already destroyed in working these quarries for the purposes of building! How many are destroyed by negligence, and how many escape the most attentive workman, from the minuteness of their size! Some idea of this may be formed from the piece I am going to describe. The lineaments there imprinted are so faint, that they must be narrowly examined in order to be recognized. Nevertheless, these lineaments are most precious, for they belong to an animal of which we find no other traces; and to an animal which, perhaps, buried of ages, now re-appears, for the first time, to the eye of the naturalist." At the end of the description of the sarigue, M. Cuvier continues,—I will not dilate on the geological consequences of this Memoir,† for it will be evident to all those who understand the systems re-

* A species of opossum.

† It was first published as a separate Memoir in the Annales du Muséum.

lative to the theory of the earth, that it overturns almost every thing which concerns fossil remains. It has been admitted that the fossils of the North have been animals from Asia; it was also allowed that the animals of Asia had passed over into North America, and had been there buried; but it appeared that the American genera had come from their own soil, and had never extended to the countries which now form the Old World. My discoveries lead to the contrary opinion, and this is the second proof I have received. Fully persuaded of the futility of all these systems, I congratulate myself whenever a well-attested fact destroys some one of them. The greatest service that can be rendered to science is, carefully and decidedly to find the place of every thing before building upon it, then to begin by overthrowing all those fantastic edifices which choke up the avenues, and which prevent the entrance of those men to whom the exact sciences have given the excellent habit of relying solely on evidence. or, in a dearth of positive evidence, on circumstances, according to their degree of probability. With these precautions there is no science which may not almost become geometrical. Chemists have lately found this with regard to their pursuits; and I hope the period is not far distant when as much will be said for anatomists." Can I be mistaken, after the perusal of the last two passages, in agreeing with M. Cuvier on the advantage of finding such a collection of fossil remains within our reach, and from this accordance to deduce the equal advantage of having had such an intellect to explain, to apply, and to appreciate the evidences thus presented to man of the changes which have taken place in the earth which he inhabits?

I now have to notice the two editions of the Régne Animal, which, with the Tableau Elémentaire, I have already esteemed as one and the same work; the first edition being a completion of the sketch contained in the Tableau, and the second edition being an enlargement of the first, with a slight alteration in the classification, necessitated by the progress of discovery. Having used the dissecting knife through every class of nature,* M. Cuvier was

* One of M. Cuvier's most able assistants in the dissecting department was M. Rousseau.

necessarily struck with the confusion of systems, their want of conformity to the internal structure of animals, and the heap of synonymes which multiplied species to infinity; and, as may be seen throughout this work; accustomed from the earliest age to entertain elevated views, and to practise method, it was absolutely necessary, even for his own future convenience, that he should rid classification of the incumbrances which impeded its advancement. The manner in which he accomplished this object, is displayed in the preface to the first edition of the Régne Animal, in the most interesting manner, together with the assistance he received from his colleagues, especially his brother, M. Frederic Cuvier, whose observations on the teeth of mammalia were of the greatest service to him in forming some of his minor divisions. This preface well describes the state in which he found the classification of animals, when he first undertook to free it from its shackles, and is annexed to both editions. The great outlines of his system may be given nearly in M. Cuvier's own words:—"There exists in nature four principal forms, or general plans, according to which all animals seem to have been modelled, and the ulterior divisions of which, whatever name the naturalist may apply to them, are but comparatively slight modifications, founded on the developement, or addition of certain parts, which do not change the essence of the plan."

The introduction to these volumes contains the definition of classes, orders, genera, &c., a general view of that which is called organization, particularly that of animals, its chemical composition, its forces, its intellectual and physical functions, and the application of method to the four great forms of the animal kingdom. From the latter I must be allowed to make a short extract. "In the first (form,) which is that of man, and the animals which most resemble him, the brain and the principal trunk of the nervous system are enclosed in a bony envelope, which is composed of the skull and vertebræ: to the sides of this middle column are attached the ribs and bones of the limbs; all of which form the frame-work of the body. The muscles which give action to these bones generally cover them, and the viscera are contained in the head, and the trunk, or body. These are styled vertebrat-

ed animals: they all have red blood, a muscular heart, a mouth with two jaws, one above, or before the other, distinct organs for sight, hearing, smell, and taste, placed in the cavities of the face, never more than four limbs, the sexes always separated, and a similar distribution of medullary masses, and of the principal branches of the nervous system. When thoroughly examining each of the parts of this great series of animals, we shall always find some analogy between them all, even in the species the farthest from each other; and we can follow the gradations of the one same plan, from man to the last of the fishes. In the second form there is no skeleton, the muscles are only attached to the skin, which forms a soft envelope, contractile in various senses, in many species of which are engendered stony plates, called shells, the position and production of which are analogous to those of the mucous body to which they belong. Their nervous system and viscera are contained in this general envelope; the former is composed of several scattered masses, united by nervous threads, the principal of which, placed on the œsophagus, bear the name of brain. In general, they only possess the senses of taste and sight, and even the last is often wanting. Only one family can boast of the organ of hearing; they have always a complete system of circulation, and organs peculiarly adapted to respiration; those of digestion and secretion are nearly as complicated as the same organs in vertebrated animals. This second form is called that of molluscous animals; and although the general plan of their organization is not as uniform, with regard to their external appearance, as that of vertebrated animals, there is still a greater or lesser degree of resemblance in the structure and functions of these parts.

"The third form is that which is to be found in insects worms, &c. Their nervous system consists of two long cords, which traverse the belly lengthwise, and are enlarged from space to space into knots, or ganglions. The first of these knots is situated above the œsophagus, and is considered as the brain; but it is scarcely larger than those which are in the belly, with which it communicates by threads, which embrace the œsophagus like a collar. Th envelope of this structure is divided by transversal folds in

a certain number of rings, the teguments of which are sometimes hard, and at others soft, but to the interior of which the muscles are always attached. The trunk often bears articulated members on its sides, but is as often without. These are the articulated animals, and it is among them that we observe the passage of the circulation in closed vessels, or nutrition by imbibition, and the corresponding passage of respiration in the circumscribed organs called tracheæ, or aërial vessels spread over the whole of the body by means of which it is performed. Like the second form, there is but one family which possesses the organs of hearing, and those of the taste and sight are chiefly developed. If they have any jaws they are always lateral. The fourth form embraces all the animals known under the name of zoophytes, and is called that of radiated animals. In all the preceding, the organs of movement, and the senses, are symmetrically disposed on the two sides of an axis; they have a posterior, and an anterior face of dissimilar appearance. But in those now mentioned, they are as if composed of rays round a centre, even when there are but two series of these rays, for then the two faces are alike. They approach the homogeneity of plants; they have no very distinct nervous system, nor particular organs for the senses. In some there are scarcely any vestiges of circulation; their respiratory organs are almost always on the surface of their bodies; the greater number have but one bag without issue for an intestine, and the last families only present a sort of homogeneous pulp, moveable, and sensible to the touch." Here I must again impress on the reader, that M. Cuvier's first great discovery was the necessity of separating this last form of animals from the general mass of insects and worms, having read his Memoir, pointing out the characters and limits of mollusca, echinodermes, and zoophytes, to the Society of Natural History in Paris, on the 10th of May, 1795. From this he ascended to animals of more complicated form, for it is only a man of narrow mind that can treat any part of natural history with contempt. All others will see in it "a continuance of that command given to Adam, to see, to name, and to use the creatures put under his control." No branch of it, however trifling, but may be ennobled

by the manner in which it is pursued; and when the student carries all its wonders back to the one Great Source, the smallest worm and the most beautiful of his own species will afford him subjects for the deepest contemplation.

The Régne Animal begins with that being which most interests us, of which there is but one genus, and one species; the differences we observe in him being but varieties, which are termed races. Nothing can be more calculated to excite profound attention than M. Cuvier's definition of Man, and it would be so much injured by selecting passages from it, that extracts can only be made from that portion entitled, "Varieties of the Human Race."—"Three of these are eminently to be distinguished from each other; the White or Caucasian, the Yellow or Mongolian, the Negro or Ethiopian. The Caucasian, to which we (Europeans) belong, is remarkable for the beautiful oval form of of the head, and from it have proceeded those people who have attained the greatest civilization, and have held dominion over the rest. It varies in complexion, and the colour of the hair. The Mongolian is recognized by its prominent cheek bones, flat face, narrow oblique eyes, straight black hair, scanty beard, and olive tint. From it have arisen the great empires of China and Japan, and by it some great conquests have been achieved, but its civilization has always remained stationary. The Negro race is confined to the south of the Atlas chain; its complexion is black, hair woolly, skull compressed, nose flattened, muzzle projecting, lips thick, and nearly approaches monkies. The natives which compose it have always remained in a comparatively barbarous state.

"The Caucasian race is subdivided into three great branches, and is supposed to have had its first origin in that group of mountains situated between the Caspian and Black Seas. The Syrian branch spread to the south, and produced Assyrians, Chaldeans, Arabs, Phenicians, Jews, Abyssinians, and probably Egyptians. From this branch, always inclined to scepticism, have arisen the religious doctrines most generally adopted. Sciences and letters have sometimes flourished among them, but always under some strange shape, or in some figurative style. The Indian, German, or Pelasgic branch took a still wider range, and

the affinities of its four principal languages are more multiplied.—The Sanscrit, which is still the sacred language of the Hindoos, is the parent of most of the Hindostanee tongues. The Pelasgic was the source whence came the Greek, Latin, and present dialects of the south of Europe. The Gothic or Teutonic, whence are derived the north and north-west languages, such as German, Dutch, English, Danish, Swedish, and their varieties; and, lastly, the Sclavonic, whence came the languages of the north-east, viz. the Russian, the Polish, the Bohemian, and the Vendean. It is this great and respectable branch of the Caucasian race which has carried philosophy, science, and art to their greatest perfection, and of which it has been the depositary for thirty centuries. The inhabitants of the north, such as the Samoyedes, the Laplanders, and the Esquimaux, come, according to some, from the Mongolian race, and according to others they are the degenerated offspring of the Scythian and Tartaric branch of the Caucasian. The Americans cannot be clearly brought back to either of our races of the Old World; and yet, nevertheless, they do not possess a sufficiently precise and constant character to form a peculiar race. Their copper complexion is far from being enough; their black hair and their beard would approach them to the Mongolian, if their marked features, their nose, equally projecting with our own, their large and open eyes, did not oppose this idea, and assimilate them to our European forms. Their languages are as innumerable as their nations; and no one has as yet been able to seize on demonstrative analogies between themselves or between them and the inhabitants of the ancient Continent."

The second order of Mammalia, is that of the Quadrumana, or apes, who are many of them men without reason: the third contains the Carnivora, which affords lions, tigers, &c. and all that we can imagine of fearfulness and ferocity; and yet, from whence we derive our faithful dogs, our domestic cats, and our most beautiful furs. The fourth is named Marsupialia, and consists of those singular animals whose young are prematurely born, and take refuge afterwards in a pocket attached to the body of the mother, till they are able to take care of themselves. The fifth, Rodentia, is that in which we find squirrels, rats, beavers, hares

&c. The sixth, Edentata, furnishes us with that disgusting animal the sloth, and the ornithorynchus, that extraordinary native of New Holland, which has a beak like that of a duck, feet so webbed as to resemble fins, fur like that of a weasel, and which has by some been supposed to lay eggs. The seventh order is called Pachydermata, and in it we find the largest animals which walk on the surface of the globe, such as the elephant, the hippotamus, the rhinoceros, and also the horse, which has been in all ages the most easily adapted to the use of mankind. The eighth, Ruminantia, whence come the cow, the camel, and the reindeer; the two latter of which convey their masters over the hottest or the coldest regions of the earth; and lastly, the ninth, or Cetacea, which presents us with the mighty monsters of the deep. These nine orders are subdivided into families, genera, subgenera, &c., and the most important species are noticed with considerable detail.

From Mammalia, M. Cuvier proceeds to Birds; and after their physiological description, he also divides them into orders, pointing out the reasons of such divisions, and carrying us through every portion of the winged tribe. He first embraces the birds of prey, such as the vultures, who act, as it were, the part of scavengers; the eagles who prey by day, and owls who thieve by night; the second contains the numerous genera of the Passeres, they are not so violent as birds of prey, properly so called, nor have they the decided habits of the Gallinaceæ, or aquatic birds, but devour insects, fruits, and grains; those who pursue insects will also feed on smaller birds, and have slender beaks; and those who eat grains have thick beaks. The first subdivision of this order depend on the feet, and the others on the form of the beaks. Among them we find our singing birds, our birds of paradise, and our humming birds. The third order is that of the Climbers, such as the parrot, &c. The fourth embraces the Gallinaceæ, whence we derive our farm-yard fowls, and most of our game. The fifth, or Grallæ, gives us the ostrich, the cassowary, the sacred ibis, &c.; and the sixth, named the Palmipedes, presents us with ducks, geese, pelicans, &c. &c.

As this first volume is conducted, so does the Régne Animal lead us through every part of the animal world, describ-

ing all in forcible and clear terms, neither saying too much nor too little, commenting upon whatever is most remarkable, viewing the affinities of these beings according to their just value, and giving a model for methodical arrangement, inasmuch as it approaches as nearly as possible to nature. It must be observed, however, of the third volume, that as the considerable increase of Entomology, in common with every other branch of natural history, rendered it impossible for one man, in a reasonable time, thus minutely to treat the whole series of life, M. Cuvier called in the assistance of M. Latreille for that part of the work which relates to Insects and Crustacea; but where the reader will find those enlightened views, and that beautiful method, which is every where practised by his great colleague. "The principles on which M. Cuvier's divisions rest, will necessarily preside over all the changes which still more extended observation will render indispensable; but the basis of zoological classification is for ever laid, and its solidity will prove, better than all the discourses of future naturalists, the elevated genius of the author." *

The galleries of stuffed animals at the Jardin des Plantes, containing thousand of species, are all arranged according to the system of the above series, the writer of which desired no better than to lay before the world the reasons on which he founded it, and to give at the same time an equal opportunity for correction and admiration. Among the specimens there placed, are those, which he amassed for the labour I have next to describe, many of which he had dissected with the most minute attention, and which increased this part of the collection to the amount of nearly five thousand species.

The great work on Ichthyology contains an application of M. Cuvier's principles to one peculiar branch of natural history, and was not only intended by him as an example of the extent of which such an undertaking is capable, but served the double purpose of aiding his further researches among fossil fishes. It was announced by himself in the conclusion of that on Fossil Remains, in the following terms:—"I shall now consecrate the remainder of my time

* Laurillard.

and strength to the publication of those researches already made in the Natural History of Fishes, but, above all, to the termination of my general Treatise on Comparative Anatomy." Scarcely did he seem to breathe between the finished and the commenced undertaking; in fact, the materials for several were collecting at the same time; that which he termed his "General Treatise on Comparative Anatomy" was always in preparation; every week brought a fresh accumulation of notes and drawings; many of the latter, and all of the former, made by his own hand. The plan of the Ichthyology was laid before the public by M. Cuvier, in a Prospectus describing the state of this branch of the science, his actual resources, and those he hoped to enjoy. M. Valenciennes, now Professor of Mollusca to the Museum of the Jardin des Plantes, was called in to aid him in the innumerable details attendant on such an enterprise, and is now charged with the continuation of the task which his great master left unfinished. Eight volumes were published at the time of M. Cuvier's death, and, since then, M. Valenciennes has added another; the whole to be completed in twenty volumes. *

The title at once implies the nature of what is to follow:— "Natural History of Fishes, containing more than Five Thousand Species of these Animals, described after Nature, and distributed according to their Affinities, with Observations on their Anatomy, and critical Researches on their Nomenclature, ancient as well as modern." Linnæus determined 477 species, and De Lacepéde 1500; thus, without calculating on the multiplication caused by the synonymes of these authors, the increase made by M. Cuvier is enormous. Throughout the work one species is chosen from each group for detail, and that preferred which is the most interesting, or the easiest to procure. This is described with the greatest minuteness, and serves not only as a type, but a means of comparison for the characteristic but simple differences between the other species which compose the group.

* This ninth volume was half printed during the life of M. Cuvier; and he left, in manuscript of his own writing, enough for three or four more volumes; but this being in detached pieces, it will be scattered through the rest of the work, according to the progress of the subject.

The necessity of stating the different names given by various authors, and the discrimination required to separate truth from fable in that which he reported of their economy, demanded the exquisite judgment and profound experience which rendered M. Cuvier so capable of the task; and there was a general eagerness felt, which does credit to naturalists and collectors of all countries, to offer to him every specimen, every discovery, every observation, even before the person so offering had himself published the particulars. This was the latest work of magnitude undertaken by M. Cuvier; and it is easy to judge, by solely viewing the rapid growth of this one branch, how every thing advanced under his influence and his personal exertions, and how materials poured upon him from those who were sure of receiving justice from his hands, and many of whom, rendered incapable by other pursuits or circumstances of publishing their observations on their own account, were delighted to be mentioned in his pages as among the very humble contributors to his glory.

But in this publication, which is accompanied by numerous and beautiful engravings, especially those made from the drawings of M. Laurillard, on the anatomy of the perch, we find a new feature. M. Cuvier becomes the historian of that part of the science of which he treats; and nothing can be more clearly or impartially given than the progress of Ichthyology, from the first certain glimpses to be met with concerning its existence; and the place, the means, the results, the influence of every labourer in the cause, are set before us with wonderful precision and order. But as this is, with the exception of the Memoirs on Mollusca (published at various times in the Annales du Muséum, and now collected into one quarto volume), the only work of M. Cuvier devoted to one single branch of natural history, it may be interesting to give an idea how it is conducted. The history abovementioned forms, as it were, an introduction to the whole, and concludes in these words:—"As for us, the only wish we can now form, is, that the work which we have undertaken may not be found unworthy, either of the illustrious writers whose labours we seek to continue, or of the aid and encouragement we have received from so great a number of friends, and from the patrons of natural history.

Happy if we could hope, in our turn, that our endeavours may rank among those which have marked the epochs of science. It is to this that all our efforts tend."

From the history, M. Cuvier proceeds to give a general idea of the nature and organization of Fishes. The following is an extract from this part:—"Being aquatic, that is to say, living in a liquid which is heavier, and offers more resistance than air, their forces for motion have been necessarily disposed and calculated for progression, and elevation, which is also accomplished by them with ease. Hence arises that form of body which offers least resistance, the chief seat of muscular force residing in the tail, the brevity of their members, the expansibility of these members, and the membranes which support them, the smooth or scaly teguments, and the total absence of hairs or feathers. Breathing only through the medium of water, that is, for the purpose of giving an arterial nature to their blood, profiting by the small quantity of oxygen contained in the air, which is mingled with the water, their blood is necessarily cold, and their vitality, the energy of their senses and movements, are consequently less than in Mammalia and Birds. Their brain, therefore, or rather a composition similar to it, is proportionably much smaller, and the external organs of their senses are not of a nature to admit of powerful impressions. Fishes, in fact, are, of all vertebrated animals, those which have the least apparent signs of sensibility. Having no elastic air at their disposal, they have remained mute, or nearly so, and all those sentiments awakened or sustained by the voice have remained unknown to them. Their eyes almost immoveable, their bony and rigid countenance, their members deprived of inflexion, and every part moving at the same time, do not leave them any power of varying their physiogomy or expressing their emotions. Their ear, enclosed on every side by the bones of the skull, without external conch or internal labyrinth, and composed only of a few bags and membranous canals, scarcely allows them to distinguish the most striking sounds; and, in fact, an exquisite sense of hearing would be of very little use to those destined to live in the empire of silence, and around whom all are mute. Their sight, in the depths of their abode, would be little exercised, if the greater num-

ber of the species had not, by the size of their eyes, been enabled to supply the deficiency of light; but even in these species, the eye scarcely changes its direction; still less can it change its dimensions, and accommodate itself to the distance of objects; its iris neither dilates nor contracts, and its pupil remains the same in every degree of light. No tear bathes this eye, no eyelid soothes or protects it; and, in fishes, it is but a feeble representation of that beautiful, brilliant, and animated organ of the higher classes of animals. Procuring food by swimming after a prey which also swims with greater or lesser rapidity, having no means of seizing this prey but by swallowing it, a delicate sense of taste would have been useless to fishes had nature bestowed it on them. But their tongue, almost immoveable, often bony, or armed with dentated plates, and only receiving a few slender nerves, shows us that this organ is as little sensible as it is little necessary. Smell even cannot be as continually exercised by fishes as by animals which breathe air in a direct manner, and whose nostrils are unceasingly traversed by odoriferous vapours. Lastly, we come to the touch, which, from the surface of their bodies being encircled by scales, by the inflexibility of the rays of their members, and by the dryness of the membranes which envelope them, has been obliged to seek refuge at the end of their lips; and even these, in some species, are reduced to a dry and insensible hardness."

In the whole of the chapter from which the above passage is selected, there is a poetical feeling, in which M. Cuvier rarely indulged when treating of science, but with which we find he could occasionally sport without injury to his subject. In the next chapter he resumes his more precise manner; and the contrast is the more striking, as this chapter may be almost styled a collection of aphorisms. It speaks of the exterior of fishes, and is succeeded by others containing the oteology, myology, brain, and nerves, nutrition, reproduction, and a general summing up and methodical distribution of this class into its great divisions, its natural families, &c. From the latter may be selected a passage well calculated to prevent those who study systems from falling into a very common error. "Let it not be imagined, because we place one genus or one family before

another, that we consider them as more perfect, or superior to another in the series of beings. He only could pretend to do this, who would pursue the chimerical project of ranging beings in one single line,—a project which we have long renounced. The more progress we have made in the study of nature, the more we are convinced that this is one of the falsest ideas that has ever resulted from the pursuit of natural history; the more we have been convinced of the necessity of considering each being, each group of beings, by itself, and the part it plays by its properties and organization, and not to make abstraction of any of its affinities, or any of the links which attach it, either to the beings nearest to it, or the most distant from it. Once placed in this point of view, difficulties vanish, all arranges itself for the naturalist: but systematic methods only embrace the nearest affinities; and by placing a being only between two others, they will always be wrong. The true method is, to view each being in the midst of all others: it shows all the radiations by which it is more or less closely linked with that immense network which constitutes organized nature; and it is this only which can give us that great idea of nature, which is true, and worthy of her and her Author; but ten or twenty rays often would not suffice to express these innumerable affinities.... We shall therefore approach to each other those whom nature has approximated, without feeling obliged to put into our groups the beings she has not placed there; and making no scruple, after having demonstrated, for example, all the species which will admit of being arranged in a well-defined genus, all the genera which may be placed in a well-defined family, to leave out one or several isolated species or genera, which are not attached to others in a natural manner; preferring the honest avowal of these irregularities, if we may be allowed to call them so, to those errors which must arise from leaving these species, and anomalous genera, in a series, the characters of which they do not embrace."

The first great division of Fishes treated of by M. Cuvier, and with which the second volume commences, is that of the Acanthopterygii, or fishes with spinous rays to their fins; and foremost amongst these, is the numerous family of the Perches, or Percoïdes, which occupies the two suc-

ceeding volumes. The fourth volume contains the family of the Joues Cuirassées, many of which, and especially those of the tropical seas, present themselves under extraordinary and exaggerated forms, and to which belong the beautiful little sticklebacks of our running streams. The fifth volume embraces the Scienoïdes; the sixth, the Sparoïdes, and the Menides; the seventh, the Squammipennes, and the Pharyngiens Labyrinthiformes; and the eighth and ninth, the Scomberoïdes. Each volume is closed by the additions and corrections which the authors have found it requisite to make during the progress of their publication; and I have offered this short list, because it has been a question often repeated, even to myself, how far this noble work was advanced when its progress was so grievously arrested. It is the intention of M. Valenciennes to proceed as rapidly as possible with the rest, designating those parts which are solely due to the exalted genius, under whose auspices he has become worthy of continuing this extensive and admirable enterprise.*

In noticing the Ichthyology, I have had occasion to speak of M. Cuvier as the historian of the science to which he was devoted; and this leads me to mention here, the annual reports made by him at the institute, in which, from the age of twenty-six, he had been accustomed to lay before that body the labours of its members and correspondents, thereby forming a general history of science from that pe-

* I have always been very much struck with one part of this work, and therefore cannot forbear calling the attention of the reader to it. It is the way in which M. Cuvier refutes the opinions of M. Geoffroy St. Hilaire, who had long opposed him with considerable warmth. As far as relates to Fishes, M. Cuvier, in notes at the bottom of certain pages, places his antagonist's arguments in two columns, and by the side of them, in two others, sets forth his refutations. Not a word of personal feeling is added, not a single argument is brought in, to aid in persuading the reader that he is right; there are the two systems, equally exposed, and he who peruses them, perfectly at liberty to verify and judge for himself. This difference of opinion being pursued with acrimony on several occasions by M. Geoffroy, it at last became a matter of discussion before the Institute; and M. Cuvier, who had long remained silent with the most heroic forbearance, at length was induced to reply. After some little time, M. Geoffroy retired from this direct contest; but it is to be hoped, that the surviving friends of M. Cuvier will one day publish his opinions separated from his great works, so that they may be accessible to those who may not have either time or opportunity to seek them in the general tenor of his publications.

riod till his death. In these "Analyses des Parties Physiques des Travaux de l'Académie des Sciences," we see the universality of his genius and acquirements; and, like almost all his other undertakings, we may consider this mass of reports, and the qualifications necessary for the making of them, as alone sufficient for the employment of a life. They comprehend, first, Meteorology and Natural Philosophy in general; secondly, Chemistry and Physics, properly so called, and when the explanation of the facts did not demand calculation; thirdly, Mineralogy and Geology; fourthly, Vegetable Physiology and Botany; fifthly, Anatomy and Physiology; sixthly, Zoology; seventhly, Travels which were connected with the advancement of natural sciences: eighthly, Medicine and Surgery; ninthly, the Veterinary Art; and tenthly, Agriculture. From these analyses a just idea may be formed of most of the principal discoveries made in all these branches of science during the time of M. Cuvier; for not only did the members and appointed correspondents of the Institute feel it a duty to communicate their endeavours to this body, but many strangers felt a laudable pride in submitting their efforts to those who would be likely to appreciate them. All is described by M. Cuvier in his usually clear and forcible language, "frequently surprising even the author himself by the lucidity with which his own ideas and experiments are set forth, and sometimes creating in him new or different views of the subject which had long occupied his thoughts."* The same fearlessness of rendering justice marked these reports, as well as the other productions of the writer; and from their impartiality, their truth, and beautiful unity, they might have been supposed rather to have related to times long past, than to have been a record of the labours of contemporaries. Not a word of his own opinions or feelings escapes him; he mentions his own works with the most perfect modesty and simplicity, and scrupulously states, with invariable fidelity, every argument brought forward, even against his own views and sentiments.

Besides these annual reports, M. Cuvier was charged by the Emperor with a new task, which he thus announces in

* Dr. Duvernoy.

a letter to his friend M. Duvernoy:—"All my labours are nearly arrested by a work demanded by the Emperor, the greater part of which has devolved upon me as secretary to the class (of natural sciences.) It is a history of the march and progress of the human mind since 1789. You may suppose to what a degree this is a complicated undertaking, respecting natural sciences; thus I have already written a volume, without having nearly reached the end; but this history is so rich, there is such a beautiful mass of discoveries, that I have become interested in it, and work at it with pleasure. I hope it will be a striking dissertation on literary and philosophical history; but above all things, I endeavour to point out the real views which ought to guide ulterior researches." It may be considered as a work of the same nature as those which I have just been describing, only infinitely greater in extent, inasmuch as it embraces a larger portion of time, and extends to those who were not in the habit of communicating with the Institute.

Napoleon had conceived the bold thought of embracing, at one view, all that the general impulse towards learning and science had produced since the above period; and it may be unhesitatingly affirmed, that the execution of his wishes accorded with the elevated feelings from which they sprang. It commences with one of those introductions which always rank among the highest efforts of M. Cuvier's genius; in which he sets before us,—if I may be allowed so to express myself,—the sublimity of science; and is throughout remarkable for the extensive views it takes, and its unflinching impartiality. The following beautiful passage is among the concluding pages, which pages contain a solicitation for amendments and continued protection on the part of the Emperor:—"To lead the mind of man to its noble destination,—a knowledge of the truth,—to spread sound and wholesome ideas among the lowest classes of the people, to draw human beings from the empire of prejudices and passions, to make reason the arbitrator and supreme guide of public opinion; these are the essential objects of science. This is how she contributes to the advancement of civilization; this is why she merits the protection of those governments, who, desirous of erecting their power on the surest foundation, form their basis on the com-

mon good." This report, and the "Analyses des Travaux," have been collected together as far as 1827, and published as a supplement to the "Œuvres complètes de Buffon," edited by M. Richard, and form two octavo volumes.

The active part taken by M. Cuvier, in conjunction with other savants, in the "Dictionnaire des Sciences Naturelles," and the influence of his name, were doubtless of infinite service to this valuable enterprize. His Prospectuses were quite as remarkable as any of his other productions, and many writers applied to him for assistance in this respect. It was not, however, only when sought that he contributed his aid; but, saying to a young author, "Let me see your Prospectus," and having seen it, adding, "let me arrange this for you," the next day, a page or two of eloquence would be ready for the press, which could not fail to produce a favourable impression of the forthcoming publication. That which announced the Dictionary I have just mentioned, rapidly exposes the history of science up to that time, and vouches for the pains taken by the contributors to its pages, that the extent to which science has lately carried her researches should be in every way gratified. Those great names with which M. Cuvier's has been so often associated in France and in England, are mentioned in the first pages in a manner so interesting, and so satisfactory, that I cannot resist the pleasure of quoting his words. The extract is preceded by a view of the advantages which science received from the precepts of Bacon, and is as follows: —"Nevertheless, it is probable that Natural History would not have so soon arrived at the brilliant condition for which it had been prepared by these wise precepts, had not two of the greatest men who adorned the last century concurred, notwithstanding the opposite natures of their views and characters (or, perhaps, by this very opposition concurred,) in causing its sudden and extensive growth. Linnæus and Buffon, in fact, seem to have possessed, each in his own way, those qualities which it was impossible for the same man to combine, and all of which were necessary to give a rapid impulse to the study of nature. Both passionately fond of this science, both thirsting for fame, both indefatigable in their studies, both gifted with sensibility, lively imaginations, and elevated minds; they each started in their career, armed with those resources which result from profound

erudition. But each of them traced a different path for himself, according to the peculiar bent of his genius. Linnæus seized on the distinguishing characters of beings, with the most remarkable tact; Buffon, at one glance, embraced the most distant affinities: Linnæus, exact and precise, created a language on purpose to express his ideas clearly, and at the same time concisely: Buffon, abundant and fertile in expression, used his words to develope the extent of his conceptions. No one ever exceeded Linnæus in impressing every one with the beauties of detail with which the Creator has profusely enriched every thing to which he has given life. No one better than Buffon ever painted the majesty of creation, and the imposing grandeur of the laws to which she is subjected. The former, frightened at the chaos or careless state in which his predecessors had left the history of nature, contrived by simple methods, and short and clear definitions, to establish order in this immense labyrinth, and render a knowledge of individual beings easy of attainment: the latter, disgusted at the dryness of antecedent writers, who, for the most part were contented with giving exact descriptions, knew how to interest us for these objects by the magic of his harmonious and poetical language. Sometimes the student, fatigued by the perusal of Linnæus, reposed himself with Buffon; but always, when deliciously excited by his enchanting descriptions, he returned to Linnæus in order to class this beautiful imagery, fearing, that without such aid he might only preserve a confused recollection of its subject; and doubtless, it is not the least of the merits of these two authors, thus incessantly to inspire a wish to return to each other, although this alternation seems to prove, and in fact does prove, that, in each, something is wanting. As unfortunately is but too often the case, the imitators of Linnæus and Buffon have precisely adopted the defects of each of their masters; and that which was in them but a slight shade in a magnificent picture, is become the principal character in the productions of many of their respective disciples. Some have only copied the dry and neological phrases of Linnæus, without recollecting that he himself only looked upon his system as the scaffolding of an edifice of much greater importance, and that in the special histories which his numerous labours have permitted him to write,

he has not neglected a single thing which belongs to the existence of the being which he describes. Others have only admired the general views and lofty style of Buffon, without remarking that he only decorated a series of facts, collected with the most judicious criticism, with these brilliant ornaments; and even that nomenclature, which they affect to despise, is always established by him with great erudition, after the most careful and ingenious discussion." I close this extract with a remark made upon M. Cuvier by M. Duvernoy, who has also cited the above passage in an éloge on his illustrious master, addressed to his disciples at Strasburgh.—"May we not say, after this, that he who so well appreciated these great men, who so happily found in the one, that which was wanting in the other, knew how to unite the excellencies of both in his own writings; or rather, that his genius, in its originality, had nothing incomplete, nothing which could make us feel the want of the true method on one side, nor the absence of general views on the other."

A list of the articles contributed by M. Cuvier to the above mentioned Dictionnaire will be found among the catalogue of his works at the end of this volume; but that headed "Nature" is too important to be passed over in silence here; to remain unnoticed in memoirs especially intended to set forth his opinions; for it contains the clearest and most satisfactory refutation of the reigning controversies that has ever been published in a separate form; though what these opinions were, may be gathered from every thing he has written.

"The word Nature, like all abstract terms which find their way into common language, has assumed numerous and divers significations. Primitively, and according to its etymology, it means that which a being derives from its birth, in opposition to that which it may derive from art. . . . It is in the nature of an oak to grow for three centuries, to have hard wood, to attain a great size, &c. It is in that of a bird to raise itself in the air, to distinguish distant objects, &c. Man is by nature capable of education; his nature is weak, inconstant, &c. Each individual may possess, physically or morally, its own peculiar nature; it may be feeble or vigorous, mild or passionate, &c.

"This word Nature is also extended to things which are not born, to unorganized beings in general, in order to designate the peculiar and intrinsic qualities which they always possess. The nature of gold is to be heavy, yellow, and not liable to decomposition by air or humidity, &c. Thus taken in its most generic acceptation, the nature of a thing is that which makes it what it is—that which distinguishes it, which constitutes it—in a word, its essence: and it is thus that we speak even of the Being of beings,—of Him in whom, and by whom, are all things; and therefore the expression applied to God, and to his attributes, is a most improper term when applied to the vilest and most perishable bodies. But that which exists in the nature of each individual, exists also in each species, and each genus; and thus, rising from abstraction to abstraction, we at length arrive at the idea of a general nature of all things; this embraces the qualities common to all beings, and the laws of their mutual affinities: it is the nature of things taken in its most abstract sense. Lastly, by a figure of speech, common to all languages, this term has been employed for the things themselves, for the substances to which these qualities belong. Nature then is, all beings, or the universe, or the world; and when considered as contingent and in opposition to the necessary Being, to God, it is called Creation. Nature, the world, creation, the whole of created beings, are, then, so many synonymes.

"But by another of those figures of speech to which all languages are prone, Nature has been personified; existing beings have been called the works of Nature, and the general affinities of these beings among themselves have been called the laws of Nature. The definitive result of these affinities, which is a certain constancy of motion, a certain fixedness in the proportion of the species; in short, the preservation, to a certain degree, of the order once established; has been entitled the wisdom of Nature. Lastly, the enjoyments afforded to sensible beings have taken the name of the bounty of Nature. Here, under the name of Nature, the Creator himself is evidently represented; they are his works, his cares, his wisdom, and his goodness, which are thus meant. Nevertheless, it is by thus considering Nature as a being gifted with intelligence

and will, but secondary and limited with regard to power, that we are able to say of her, that she unceasingly watches over the preservation of her works, that she makes nothing in vain, that she effects all by the most simple methods, that she contributes to the cure of diseases, but that she is sometimes overcome by the force of malady; and other adages; many of which are only true in a very limited sense, and in a very different manner from that which they seem to offer at the first glance. . . . In proportion as the knowledge of astronomy, physics, and chemistry has been extended, these sciences have renounced the false reasoning which resulted from the application of this figurative language to real phenomena. Some physiologists only have continued to use it, because the obscurity in which physiology is still enveloped, renders it necessary to attribute some reality to the phantoms of abstraction, in order to practise illusion on themselves and others, concerning their profound ignorance as touching vital motion.

"Nevertheless, this ancient idea of an active but subordinate principle, distinct from ordinary forms, and the laws of motion which should preside over organization, and which should keep it in order, still prevails, not only in language, but in the systems of a great many writers, who, although they allow the justice of the distinctions we have now made, yet suffer themselves to be drawn unconsciously towards doctrines which have no other foundation. Such are the doctrines of the 'Scale of Nature,' the 'Unity of composition,' and others similar to these, which have all been imagined in consequence of the belief in a Nature distinct from the Creator, and less powerful than he is, and which have no evident support, but in those fancied limits which they place to his power.

"That each effect may proceed from a cause, which cause is to be traced to an anterior cause; that in this manner all events, all successive phenomena, may be linked together; that there may be no interruption in the march of nature, and that we may, in this sense, compare her to a chain, all the rings of which are attached to and follow each other; is evident on the least reflection. That the beings which exist in the world are so constructed as to maintain a permanent order; that they have, con-

sequently, sufficient for all their wants; that their action and re-action may exist in every place, and at every moment, as necessary for this permanency; that it may be the same with the parts of each being; the very maintenance of this order teaches us. Lastly, that in this innumerable multitude of different beings, each, taken apart, may find some which resemble it more than others, by their internal and external forms; that it may be the same with these, relative to a third set; and that, consequently, we may be able to group near each being, a certain number of other beings which approach it in different degrees; must necessarily be the case. But, that we ought to apply to the resemblances of these simultaneous beings, that which is true concerning the relation of successive phenomena and events; that the forms of these beings necessarily constitute a series or a chain, so that the eye may gradually pass from one to the other, without finding any gap, any hiatus; in short, the existence of a continued and regular scale in the forms of beings, from the stone to the man; this is what our three concessions by no means prove; this is what is not true, whatever eloquence may have been used in tracing the imaginary picture. The philosophers who have supported this system of a scale of beings, at each interruption which is pointed out to them, pretend, that if a step is wanting, it is hidden in some corner of the globe, where a fortunate traveller may one day discover it. Nevertheless, all regions, all seas, have been explored; the number of species collected increases every day; there are, perhaps, a hundred-fold more than when these paradoxical opinions began to be established, and none of the spaces are filled up; all the interruptions remain; there is nothing intermediate between birds and other classes; there is nothing between vertebrated animals and those which have no vertebræ. The distinctions of true naturalists remain in all their force; the laws of the co-existence of organs, those of their reciprocal exclusion, remain unshaken. Each organized being has in concordance all that is necessary for its subsistence; each great change, in one organ, produces a change in others. A bird is a bird in all and every part; it is the same with a fish or an insect. We cannot even conceive a being which,

having certain wants, has not the power of satisfying them; a being which could have a part of its organization allied to another part, suited to a different being, an intermediate being, in fact, that which is called a passage.

"Each being is made for itself, and in itself is complete: it may resemble other beings, each equally composed of what is fit for it, but none can be composed with a view to another, nor to join it to a third by affinity of form; and that which is true of the least plant, of the least animal; that which is true of the most perfect of animals, man; of the little world, as the ancient philosophers called it, is necessarily not the less true of the great world, the globe, and all its inhabitants. The beings which compose it, and which people it, contribute to its existence; they are necessary to each other, and to the whole: they have been so since this existence has subsisted; they will be as long as it shall subsist. The world is like an individual, all its parts act on each other: we can imagine other worlds more or less rich, more or less peopled, the preservation of which rests on other means; but we cannot conceive the present world deprived of one or several of the classes of beings which inhabit it, any more of the body of man deprived of one or several of its systems of organs.

"There is, then, in the world, as in the body of man, that which is necessary, and nothing more. What law could have obliged the Creator unnecessarily to produce useless forms, merely to fill up the vacancies in a scale, which is only a speculation of the mind, and which has no other foundation than the beauty which some philosophers discover in it? But in every thing beauty consists in relative fitness: the beauty of the world is formed by the happy concourse of beings which compose it, in their mutual preservation, and in that of the whole, and not in the facility which a naturalist may find in arranging them into a simple series.

"Nevertheless, to the hypothesis of a continued scale in the forms of beings, other philosophers have added that in which all beings are modifications of one only; or, that they have been produced successively, and by the developement of one first germ; and it is on this that an identity of composition for all has been engrafted. . . . This system (as it

now exists) seizes hold of some partial resemblances, without having any regard to differences; it sees in the worm the embryo of the vertebrated animal; in the vertebrated animal with cold blood, the embryo of the animal with warm blood; it thus makes one class spring from the other; they are but different ages of one only; and the whole of animal life has the same phases as the most perfect individual of its species. From this naturally arises the consequence, that, taking the superior classes in an embryo state, we ought there to find the inferior parts, and that the composition of all must be alike, except the greater or lesser developement of certain parts. But these affinities, which offer something like plausibility when announced in general terms, vanish directly they are detailed, and a comparison is made, point by point. There is not less hiatus in the affinities of parts than in the scale of beings; in vain, in order to escape conviction, arbitrary suppositions are brought forward in the overthrow of organs incompatible with the links which attach them to the rest of the body; in vain, as a last resource, is figurative language (which no logic can penetrate) made use of; they are obliged to confess that certain parts, often numerous, are wanting in certain beings, without any apparent reason for their absence, other than because they did not agree with the whole of the being; and if in these pretended theories we seek a rational and general basis, what is to be found except the supposition of a nature limited in her mode of action?

"In fact, if we look back to the Author of all things, what other law could actuate him than the necessity of according to each being, whose existence is to be continued, the means of insuring that existence; and why could he not vary his materials and his instruments? Fixed laws of co-existence in organs were then necessary, but that was all: for, to establish others, there must have been a want of freedom in the action of the organizing principle, which we have shown to be mere chimera. In vain do they have recourse to that other axiom, of being obliged to make every thing by the most simple means. Very far from its being more simple to employ the same materials for different objects, it is easy to conceive some instances in which this method would have been the most complicated of all; and cer-

tainly nothing is less satisfactorily proved than this constant simplicity of means. Beauty, richness, abundance, have been the ways of the Creator, no less than simplicity.

"Whenever they who, in recent times, have sought to give a new form to the metaphysical system of pantheism, and which they have entitled 'Philosophy of Nature,' have adopted the two hypotheses of which we have just spoken, they have added a third, quite of the same kind. Not only each being, according to these, represents all others, but it has a representation of itself in each of its parts. The head is a complete body; the skull, composed of vertebræ, is the spine; the nose is the thorax; the mouth the abdomen; the upper jaw the arms, the lower the legs; the teeth are fingers or nails; and in this thorax, in these four members, are to be found the larynx, the ribs, the shoulder-blades, and the basin, in a word, all the bones.

"We comprehend, in fact, that those who admit but of one single substance, of which every individual existence is but a manifestation, would have pleasure in adopting the idea that these manifestations succeed each other in a regular and progressive order; that they all bear the impression, and, in some measure, become the images of one common type, or essential substance, and that each part, each part of a part, not only represents the special whole which contains it, but even the great whole which contains all others. . . . .

"We, however, conceive nature to be simply a production of the Almighty, regulated by a wisdom, the laws of which can only be discovered by observation; but we think that these laws can only relate to the preservation and harmony of the whole; that, consequently, all must be constituted in a manner that contributes to this preservation and to this harmony, but we do not perceive any necessity for a scale of beings, nor for a unity of composition, and we do not believe even in the possibility of a successive appearance of different forms; for it appears to us that, from the beginning, diversity has been necessary to that harmony, and that preservation, the only ends which our reason can perceive in the arrangement of the world."

Besides the "Dictionnaire des Sciences Naturelles," there was yet another work of the same kind to which M.

Cuvier was a contributor—the "Dictionnaire des Sciences Médicales." The most important of the papers thus destined is that headed "Animal;" in which, after stating that the power of will can only produce the movements for for which the body is adapted, and that, consequently, the energy of the signs which it gives will bear a proportion to the greater or lesser perfection of the envelope, he takes a rapid view of the beings which fill the interval between the sponge, the *animality* of which consists solely in the power of contraction; and the dog, or elephant, each of whom is gifted with a sentiment which often bears the appearance of reason.

I shall confine myself to the extract of that part which describes the lower order of animals, having already, when mentioning other writings, had occasion to speak frequently of the higher classes. "A little above the sponges are the monades, and other microscopic animals of a homogeneous substance, simple and uncertain in form, but which move in water with greater or less rapidity. The polypes only exceed these by having an invariable figure, and some distinct members round the mouth; several of them, fixed to the solid masses which they themselves produce, have no motion but in their members, and are incapable of changing place. The radiata, or sea-nettles, ascend in organization, by having several ramifications of the intestinal canal. The echinodermes possess an envelope more or less hard, and their numerous members serve them for progressive motion. At this point the star form disappears, and gives place to the symmetrical, where similar parts are disposed along a line or axis. Almost all of the most simple of these, the intestinal worms, live in other animals; they have neither members, nor heart, nor blood vessels; their body is elongated, and sometimes articulated." To these succeed insects, &c. &c. and the whole concludes with a comparison between plants and animals.

It is not the just appreciation of Linnæus and Buffon only that we owe to M. Cuvier: there is yet another celebrated writer, whose real value may be gathered from his labours; and the profound learning evinced in the notes to M. Lemaire's edition of Pliny show, that M. Cuvier could make even his classical attainments serve the

science to which he was devoted. Pliny has frequently been magnified into a great author concerning natural history, and his writings appealed to as a most indisputable source of information. It seems, however, that he was but a skilful compiler; he copied what others had said before; he asserted many things from common report, and could by no means be relied on with that security which is due to the naturalist who describes from personal observation. Thus, although there is much in him to believe and to admire, considerable caution is requisite in the study of his pages; and it is a most important service rendered to the inexperienced, to have identified the animals of Pliny, to have shown how much is worthy of confidence, and what should be rejected.

I am now about to notice a work of a very different character from any which have hitherto been presented: it is a very small duodecimo volume of eighty-nine pages, but it is a gem which owes nothing of its lustre to its size, and sparkles, amid other brilliants, from the exquisite feeling which breathes in every line. It does not delight us by the charms of its eloquence, so much as by placing M. Cuvier before us as a moralist who derives his precepts from that pure light which shines on all who seek it. The subject is the distribution of the prizes founded by M. de Montyon for virtuous actions. This philanthropist had spent a life of usefulness, and particularly sought to meliorate the condition of the lower classes, "that class of beings, which," to use M. Cuvier's expressions, "he saw exposed to poverty and disease; forced to undergo severe and painful, even dangerous and unhealthy labours; almost entirely deprived of education; particularly open to the seductions of vice, the torrent of passions, and brutal pleasures; often obliged to listen to the suggestions of want and hunger, and having no resource against these temptations in mental acquirement, in the habit of reflection, in public esteem, in the hope of a better fate, or that ease of circumstances, which in other conditions is acquired by labour and good conduct."

M. de Montyon left legacies to hospitals; and thinking, that after quitting these asylums in too weak a state to work, the poor needed still further aid, he destined a cer-

tain sum to this purpose. Besides this, he left funds for bestowing prizes on those who invented machines to be used in agriculture or mechanical arts, and also on any one who should discover efficacious remedies for the diseases which afflict humanity, or diminish the danger to which workmen are exposed in carrying on several of their occupations: he founded a third prize for books, which should instruct the poor in moral conduct and proper deportment; and, lastly, he instituted that of virtue, exclusively in favour of the poorer classes. This prize is annually bestowed, and awarded by the Académie Française. In 1829, M. Cuvier was appointed, at the meeting of St. Louis, to inform the public how the prizes had been bestowed; and his discourse on the subject forms the volume of which I now speak.

In his introduction to the history of those who have obtained the prizes, the author says, "Let us first ask the question, What is virtue? An ancient philosopher answers, 'Remarkable and brilliant virtue is that which supports woe and labour, or which exposes itself to danger, in order to be useful to others, and that without expecting or desiring any recompense.' The philosopher has well said that this is rare and brilliant virtue; perhaps it is even above humanity; but let us observe, that its two principal characters are, usefulness to others, and perfect disinterestedness. But we will turn from pagan antiquity, open the Gospel, and there seek an answer to the question proposed. We read in the Holy Writings, 'Love God above all things, and your neighbour as yourselves: the law and the prophets are contained in these two precepts.' Thus, he who has followed these precepts is virtuous; he will have accomplished the entire law. Now, what is it to love God? How can we prove that we love him? It is by conforming to his will, by doing that which he orders; and the first thing which he commands us to do, after loving him, is to love our neighbour as ourselves; and our neighbours are all men, without distinction or exception, as the Gospel also teaches us in the parable of the Samaritan. This command, given us by God, has been rendered easy and pleasing in execution by himself having implanted in our souls, at our birth, a love for our neigh-

bours, a natural disposition to love our fellow-creatures, to rejoice in their joy, and weep for their sorrows. This sympathy, this soothing feeling, which religion calls charity, is to be found in all pure and unperverted hearts, though it is not equally developed, equally energetic in all. We feel that which we owe to each other, not only justice, but succour to the extent of our ability. Do not to others that which you would not they should do unto you; and do to others as you would they should do unto you. These are very simple rules, to be comprehended even by children, and recognized by them as equitable and necessary; they are the foundation of all morality, and why are they not always followed? It is because we are blinded by our passions, our inclinations, and our interests. We have just said that God has given us the feeling of love towards our neighbours, but he has also given us a love for ourselves, for our own preservation; this sentiment is not less natural than the other, and is not wrong, because it is necessary; it even teaches us several virtues, such as temperance for the sake of health, prudence to avoid danger, and courage for the means of extricating ourselves from difficulty. God tells us to love our neighbour as ourselves, that is, to tell us to love ourselves; but when this love of self is carried to excess, then it is that it merits the odious appellation of egotism; then it prompts us to sacrifice others to ourselves, to wish to enrich ourselves by their losses, to reckon others as nothing when our own satisfaction is concerned; then does it become a guilty feeling; then does it lead us to injustice and crime. It is even sad and foolish to love ourselves only; and if we have never done any thing for others, how can we expect gratitude and help from them? 'C'est n'être bon à rien, de n'être bon qu'à soi.'* He who stifles in himself the feeling of compassion, and only obeys the dictates of self-love, is a dangerous being in society, and who ought to be reproved and punished in society at least by contempt. We may say, that almost all the evil we commit arises from egotism; whilst the greater part of our good actions is inspired by love for our fellow-creatures. Therefore, the best system of educa-

* It is to be good for nothing to be only good to one's self.

tion is that which teaches us to direct and control our self-love within its just limits, and, at the same time, tends to develope and augment our love for others, our desire of being useful, and doing them good. These reflections lead us back to M. de Montyon, who, always animated by this desire, wished to render all men wiser, better, and happier. It was with this intention that he founded the prizes of virtue, the distribution of which has been confided to the Académie Française, and this is the tenth time of fulfilling this honourable mission.... But the liberality of M. de Montyon, though great, must be limited; and a choice must be made among those who are presented to us, each with the strongest claims. It may be imagined how difficult it is to make this choice; how painful, and even afflicting, it is to the judges to be obliged to compare and coolly weigh actions which amount to sublimity; and, while animated to enthusiasm, or moved almost to weakness, thus impartially and calmly to pronounce judgment. Besides, what man can flatter himself that he can be exempt from error in such decisions? God alone is the judge of virtue, because he alone can read our hearts, penetrate into our motives, and know our intentions: God alone gives to virtue its real reward. We can only see the exterior, and presume on the motives, which we are bound to consider as pure and upright, when the actions bear the appearance of disinterestedness and goodness."

Thus far I have attempted, by translation, to give some idea of this beautiful little volume: but as the account of M. Cuvier's works draws near to the close, it will be desirable, occasionally, to give specimens of his style, by extracts from the French; and having thus stated the motive, these passages will be introduced whenever they seem to me to be best calculated for displaying his powers. The following is selected from the "Prix de Vertu:"*—"Nous avons à ra-

*We have now to recount the good deeds of fifteen other persons, to whom the Academy has decreed medals; but as we commence these recitals, a fear assails us of fatiguing our readers by monotony, by want of variety. These histories are all alike; it is always charity, always benevolence, always a disinterested devotion to the cause of the unfortunate. These we must for ever praise, for ever admire; and this is not the way to rouse or to fix attention. Eulogium fatigues or sends us to sleep, and an

conter les bonnes actions de quinze autres personnes, auxquelles l'académie a décerné des médailles; au moment de commencer ces récits, nous éprouvons une crainte, celle de fatiguer nos lecteurs par la monotonie, et le défaut de variété, ces récits vont se ressembler entre eux; ce sera toujours de la charité, toujours de la bienfaisance, toujours un devoûment désintéressé aux infortunes d'autrui; et puis, il faudra toujours louer, toujours admirer: ce n'est pas le moyen de rèveiller et de soutenir l'attention; l'éloge nous fatigue ou nous endort; un écrivain Anglais dit spirituellement, que tous les panégyriques semblent confits dans du jus des pavots. Eh bien! nous nous abstiendrons de dire un seul mot qui pourrait sembler destiné à faire valoir des actions si touchantes; elles se recommandent assez par elles-mêmes; et ceux qui auraient le malheur de n'en être pas attendris, ne seraient pas même en état de comprendre les éloges que nous pourrions y ajouter."

One of the great prizes awarded on this occasion was five thousand francs to Louise Scheppler, whose history will, if I mistake not, be acceptable to the reader, as given by the Baron Cuvier. "Louise Scheppler has, perhaps, carried this industrious beneficence still farther, for it is not one family, it is an entire country which enjoys the fruits of her benevolence; a whole country which has been vivified by the charity of a poor servant. In the rudest part of the chain of the Vosges mountains is a valley, almost separated from the rest of the world. Sixty years back it afforded but scanty nourishment to a half-civilized population, consisting of only eighty families, distributed in five villages. Their ignorance and their poverty were equally great; they neither understood German nor French; a patois, unintelligible to any but themselves, was their sole language; and, what is scarcely credible, their misery had not softened their manners. These peasants, like the lords of the middle ages, governed by force, hereditary feuds divided families, and more than

English writer wittily says, that all panegyrics seem to have been cooked in poppy juice. We however will abstain from saying a single word which may appear to be given for the purpose of impressing these affecting circumstances. Still more forcibly do they carry their own recommendation with them; and those who are so unhappy as not to feel them, will not be capable of comprehending any eulogiums which we could add to them.

once gave rise to acts of criminal violence. A pious pastor, named John Frederick Oberlin, who has since become so celebrated undertook to civilize them; and for this purpose, like one who knew mankind, he first attacked their poverty. With his own hands he set the example for all useful labours, and, armed with a pickaxe, he directed them in the construction of a good road, digging and labouring with them; he taught them to cultivate the potatoe; he made them acquainted with good vegetables and fruits; showed them how to engraft, and gave them excellent breeds of cattle and poultry. Their agriculture once perfected, he introduced manufactures among them, in order to employ superfluous hands; he gave them a saving-bank, and put them in communication with the commercial houses of the neighbouring towns. As their confidence increased with their improvement, he, by degrees, gave them instruction of a higher nature. He himself was their schoolmaster, till he could form one capable of seconding his endeavours. Having once learned to love reading, every thing became easier; chosen works were brought to them to aid the conversation and example of the pastor; religious feelings, and, with them, mutual benevolence, insinuated themselves into their hearts; quarrels, crimes, and lawsuits disappeared; and, if by chance, some dispute arose, they, with one accord, came to Oberlin, and begged him to put an end to it. In short, when this venerable man was nearly at the end of his career, he was able to say, that in this province, once so poor and thinly populated, he left three hundred families, regular in their habits, pious and enlightened in their sentiments, enjoying remarkable ease of circumstances, and provided with the means of perpetuating these blessings. A young female peasant from one of these villages, named Louise Scheppler, though scarcely fifteen years of age, was so forcibly impressed with the virtues of this man of God, that, although she enjoyed a small patrimony, she begged to enter into his service, and take a part in his charitable labours. From that time she never accepted any wages; she never quitted him; she became his help, his messenger, and the guardian angel of the rudest huts. She afforded the inhabitants every species of consolation; and in no instance can we find a finer example of the power of feeling to exalt

the intelligence. This simple village girl entered into the elevated views of her master. even astonishing him by her happy suggestions, which he unhesitatingly adopted in his general plan of operation. She it was who remarked the difficulty that the labourers in the fields experienced, in combining their agricultural employments with the care of their younger children, and who thought of collecting together, even infants of the earliest age in spacious halls, where, during the absence of their parents, some intelligent instructresses should take care of, amuse, teach them their letters, and exercise them in employments adapted to their ages. From this institution of Louise Scheppler arose the infant schools of England and France, where the children of the working classes, who would otherwise be exposed to accidents and vicious examples, are watched over, instructed, and protected. The honour of an idea which has produced such beautiful results is solely due to this poor peasant of Ban de la Roche; to this she consecrated all her worldly means, and, what are of more value, her youth and her health. Even now, though advanced in years, she, without receiving the smallest compensation, assembles a hundred children round her, from three to seven years of age, and instructs them according to their capacities. The adults, thanks to M. Oberlin, have no further moral wants; but there are yet some, who in sickness or old age have need of physicial aid. Louise Scheppler watches over them, carries them broth, medicine, in short, every thing, not forgetting pecuniary succour. She has founded and regulated a sort of Mont de Piété,* of a peculiar kind, which would be an admirable institution elsewhere, if it could be multiplied like the infant schools; for it is among the very small number of those which merit the name given to them, for money is there lent without interest and without securities. When M. Oberlin died, he, by will, left Louise Scheppler to his children; the simple words of a dying master may be heard with interest, and will be more eloquent than any thing we can add:—'I

* The Mont de Piété of Paris, managed by a company of individuals, was first established on the same principle as that of Louise Scheppler, but is now the general establishment for pawning, to which all the minor pawnbrokers of that city belong.

leave my faithful nurse to you, my dear children, she who has reared you, the indefatigable Louise Scheppler; to you also she has been a careful nurse, to you a faithful mother and instructress; in short, every thing: her zeal has extended still further; for, like a true apostle of the Lord, she has gone to the villages where I have sent her, to gather the children round her, to instruct them in the will of God, to sing hymns, to show them the works of their all-powerful and paternal Maker, to pray with them, to communicate to them all the instructions she had received from me and your own excellent mother. The innumerable difficulties she met with in these holy occupations would have discouraged a thousand others; the surly tempers of the children, their patois language, bad roads, inclement weather, rocks, water, heavy rain, freezing winds, hail, deep snow, nothing has daunted her. She has sacrificed her time and her person to the service of God. Judge, my dear children, of the debt you have contracted to her for my sake. Once more, I bequeath her to you; let her see, by your cares, the respect you feel towards the last will of a father,—I am sure you will fulfil my wishes, you will in your turn be to her all together, and each individually, that which she has been to you.' Messieurs and Mesdemoiselles Oberlin, faithful to the wishes of their father, were desirous of bestowing on Louise the inheritance of a daughter; but nothing could induce this generous woman to lessen the small patrimony left by her master; and all she asked was, permission to add the name of Oberlin to her own. Those who claim this honourable appellation as a birthright, think themselves still further honoured by her sharing the title."

In his office of Secretary to the Academy of Sciences, it was also the duty of M. Cuvier to read an éloge upon the deceased members of that body before a public meeting. As his peculiar department did not extend to the calculating sciences, the labours of those who devoted themselves to such devolved upon the other secretary; but all the éloges written by M. Cuvier have been collected at various times, and published in successive volumes. Before I give an account of them, a few remarks upon his delivery may be desirable. The very slight accent of Montbéliard which might be traced in his conversation, entirely disappeared

while reading or speaking in public; his voice could be heard every where without being pitched in too elevated a key, his articulation was remarkably clear and distinct without being affected, so that foreigners found it easier to comprehend him than most of the French orators, and there was a tone of feeling, a certain play of countenance, which carried his auditors with him in all the sentiments he tried to inspire. There was nothing in the least declamatory or theatrical, in order to arrest the attention; but his melodious tones, his elegant turn of expression, and natural grace of manner, gave a charm to the shortest phrases. These last perfections were so much the more remarkable, as emphasis was the fashion in academical discourses when he commenced his career, and it was like creating a new school to return to nature.

I now resume the description of the éloges, which form three volumes in octavo; and, as several remain which have only been published for the members of the Institute, it is to be hoped that, ere long, a fourth volume will be added. The first contains, previous to the éloges, "Reflections on the Progress of Science, and its influence on Society," read at the first annual sitting of the four academies. I must stop here to cite a most eloquent sketch from it, which leads us from the first helpless state of man to his present powerful condition, for it will give to my readers a proof of M. Cuvier's power of bringing important truths before us by one luminous flash from his pen.

* "Jeté faible et nu à la surface du globe, l'homme pa-

* Man, who had been thrown on the surface of the globe in a state of feebleness and nakedness, would appear to have been created for inevitable destruction: evils assailed him on all sides, and the remedies for them appeared to be hidden from him; but he had been endowed with talents for their discovery. The first savages gathered nourishing fruits and wholesome roots in the forests, and thus conquered their most pressing wants. The first shepherds perceived that the stars followed a regular course, and by them directed their steps across the desert. Such was the origin of physical and mathematical sciences.

No sooner had the genius of man ascertained that it was possible to combat nature by her own means, than it no longer rested; it watched her incessantly, and continually gained new conquests over her, each marked by some melioration in the state of society. Then succeeded, without interruption, those meditating minds, which, being the faithful depositaries of acquired doctrines, were constantly occupied in connecting them, in vivifying the one by the help of the other, and which have led us, in less

raissait crée pour une déstruction inévitable : les maux l'assaillaient de toute parte, les remèdes lui restaient cachés ; mais il avoit reçu le génie pour les découvrir. Les premièrs sauvages cueillirent dans les forêts quelques fruits nourriciers, quelques racines salutaires, et subvinrent ainsi à leurs plus pressans besoins : les premiers pâtres s'aperçurent que les astres suivent une marche reglée, et s'en servirent pour diriger leurs courses à travers les plaines du désert. Telle fut l'origine des sciences mathématiques, et celle des sciences physiques.

"Une fois assuré qu'il pouvait combattre la nature par elle-même, le génie ne se reposa plus ; il l'épia sans relâche, sans cesse il fit sur elle de nouvelles conquêtes, toutes marquées par quelque amélioration dans l'état des peuples. Se succédant dès-lors, sans interruption, des esprits méditatifs, dépositaires fidèles des doctrines acquises, constamment occupés de les lier, de les vivifier, les unes par les autres, nous ont conduits, en moins de quarante siècles, des premiers essais de ces observateurs agrestes aux profonds calculs des Newton et des Laplace, aux énumérations savantes des Linnæus et des Jussieu. Ce précieux héritage, toujours accru, porté de la Chaldée en Egypte, de l'Egypte dans la Grèce, caché pendant les siècles de malheur et de ténèbres, recouvré à des époques plus heureuses, inégalement répandu parmi les peuples de l'Europe, a été suivi partout de la richesse et du pouvoir ; les nations qui l'ont recueilli sont devenues les maîtresses du monde ; celles qui l'ont négligé sont tombées dans la faiblesse et dans l'obscurité."

The first éloge was read on the 5th of April, 1800, and is that of the venerable Daubenton, who it will be recollected, was the colleague of M. de Buffon, born in the same town with him, and chosen by him to aid his scientific labours. The reasons of this choice are given by M. Cuvier, who first describes Buffon as a man of independent fortune, whose personal and mental attractions, and violent thirst for

than forty centuries, from the first attempts of these pastoral observers, to the profound calculations of Newton and Laplace, to the learned enumerations of Linnæus and Jussieu. This precious inheritance, always augmenting, borne from Chaldea to Egypt, from Egypt to Greece, hidden during ages of misery and darkness, unequally spread among the people of Europe, has been every where followed by riches and power; the nations who have welcomed it, have become mistresses of the world, and those who have neglected it have fallen into feebleness and obscurity.

pleasure, seemed to cast his destiny in any other mould than that of science, but who nevertheless found himself irresistibly drawn towards it, the surest sign of his extraordinary talents. Long uncertain to what object he should devote his genius, he tried several pursuits, and at length fixed on natural history. From the first he measured it in its whole extent; he, at one glance, perceived what he had to do; what was in his own power to effect, and in what he required assistance. I would fain quote all that M. Cuvier says of his predecessor; but a few of the leading points of the different éloges are all that can be offered here, in order to give an idea of their nature, their variety, and their beauty. Continuing to speak of M. de Buffon, M. Cuvier states, that, gifted with the most ardent imagination, and possessing a pen that was the echo of that imagination, viewing nature in all its activity and freshness, and deeply impressed with it as a whole system of beauty and order, he required some one to inspect the details, some one who was gifted with the power of patient investigation, some one whose love of justice and calm tone of mind would form a sort of counter-balance to his ardour, some one equally devoted to the cause, but at the same time modest enough to play a secondary part, and leave him in possession of the brilliant fame he coveted. These requisites were all centred in Daubenton, the companion of his youth. Both morally and physically there was the strongest contrast between the two friends, and each was possessed of those qualities which were necessary to moderate and improve the other. Buffon, commanding every thing, eager for immediate results, and imperious by nature, was desirous of divining the truth, not of reaching it by patient investigation. His imagination at every instant placed itself between him and nature, and his eloquence seemed to wrestle with his reason before he employed it in captivating others. Daubenton, delicate in constitution, moderate by nature as well as reason, pursued his researches with the most scrupulous circumspection; he only believed and affirmed that which he had seen and touched, and far, very far, from wishing to persuade by other means than facts, he carefully avoided, both in his writings and discourse, every figure of speech, and every fascinating expression. Unalterable in patience, he was

never annoyed at delay; he recommenced the same labour over and over again, until he had succeeded to his satisfaction; and the method of his proceedings, while it seemed to call into use every mental resource, seemed to impose silence on his imagination. When Buffon first attached him to the Jardin des Plantes, he thought he had found a laborious aid, who would smooth the ruggedness of his path; but he found much more, for Daubenton was a faithful guide, who pointed out to him the hidden dangers and precipices of that path. Many times did the sly smile of Daubenton, when he conceived a doubt, induce Buffon to reconsider his ideas. Many times did one of those words, which this friend knew so well where to place, stop him in his precipitous career; and the wisdom and prudent reserve of the one, uniting themselves to the force and rapidity of the other, gave to the "Histoire des Quadrupèdes," the only work common to both, that perfection which makes it the most interesting part of the great Natural History of Buffon, It is more exempt from errors than the rest, and will long remain a classical book among naturalists. Daubenton was appointed "Demonstrateur du Cabinet d'Histoire Naturelle," and his salary was gradually augmented from five hundred francs to four thousand; he was lodged at Buffon's, and nothing was neglected which could ensure him that ease of circumstances which is necessary to every man of letters, every savant who would be wholly devoted to science. Daubenton, on his side, amply repaid these kindnesses by unremitting obedience to the views of his benefactor, and, at the same time, erected a monument to his own glory. Before the time of Daubenton, the Museum of Natural History was a mere cabinet, and, strictly speaking, only contained the shells collected by Tournefort for the amusement of Louis XV., when young. In a very few years, the whole face was changed. Minerals, fruits, woods, and shells were brought from every quarter and exposed in the most beautiful order; means were taken for discovering the best modes of preserving different parts of organized beings; and the inanimate remains of birds and quadrupeds re-assumed the appearance of life, presenting the slightest details of character to the attentive observer, while they astonished the curious by the variety of their forms and the brilliancy of their colours. Daubenton

conceived a vast plan, and, supported by Buffon, profited by the means his credit afforded. No production of nature was excluded from this temple, and a number of anatomical preparations were collected, which, though less agreeable to the eye, were not less useful to the person who did not limit his researches to the exterior of created beings; who endeavoured to make a philosophical science of natural history, and to force it to explain its own phenomena. The study and arrangement of these objects became a real passion for Daubenton; he shut himself up for whole days in the Museum; he arranged the objects in a thousand different ways; he scrupulously examined all their parts; and he tried every possible arrangement until he found that which neither offended the eye nor natural affinities. Thus it is principally to Daubenton that France owes the magnificent museum of the Jardin des Plantes, where we must be struck with the unwearied patience of the man who amassed all these treasures, named them, classed them, displayed their affinities, described their parts, and explained their properties.* A monument equally glorious to the memory of Daubenton is the complete description of this museum, though circumstances prevented him from carrying it farther than the quadrupeds. Reaumur, who had till then swayed the sceptre of natural history, and whose "Memoirson Insects" are clear, elegant, and highly interesting, jealous of the increasing fame of the two great naturalists, not only attacked Buffon but his friend, whom he considered as the solid supporter of his brilliant rival. Quarrels even took place in the Academy, and M. de Buffon was obliged to tax the good offices of Madame de Pompadour, in order to preserve Daubenton in the rank which was due to his labours. At length the insinuations of their enemies seemed to take effect, and even

* It is impossible to read these pages without being impressed with the application of several of the passages to the author himself, who appears, however, to be perfectly unconscious of the resemblance. At the time he wrote this concerning Daubenton, he was walking with rapid strides in his steps, and how he surpassed him is best told by the state of the whole of the above establishment at the time of M. Cuvier's death. I understand that considerable difficulty has been felt more than once in writing the éloge of M. Cuvier. A selection from his own concerning others might be made with the strictest justice, and the utmost aptitude; and the candid praise he delighted to bestow on his colleagues would thus in every respect be his best eulogium.

Buffon began to think, that it would be more advantageous for himself to publish his "Histoire Naturelle," in thirteen volumes duodecimo, taking away not only the anatomical parts but the external descriptions; and he also determined to appear alone before the public when treating of birds and minerals. To act thus was not only to wound Daubenton's feelings, but to injure him in a pecuniary sense. He might, with reason, have pleaded that it was an enterprize common to both; but had he asserted his right, he must have quarrelled with the director of the Jardin; he must have quitted the scenes he had, as it were, created, and which were inseparable from his existence. He therefore passed over the loss and the affront, and continued his labours, in a measure consoled by the regret expressed by all naturalists, when they saw the History of Birds appear without his exact description. It is worthy of mention, that to such a degree did he carry his spirit of forgiveness, that he afterwards contributed some parts to the "Histoire Naturelle," although his name was never again attached to the work. His intimacy with his friend was also renewed, and continued unbroken till the death of Buffon.

The efforts of Daubenton were far from being confined to the above-mentioned pursuits, and one of the other objects of his endeavours was an attempt to improve the wool of France, by which means he obtained a popularity which was very useful to him before the Assembly of the Sans Culottes. A certificate of civism was necessary for his personal safety at that stormy period, to obtain which, his titles of Professor and Academician were of little avail; he was at length presented under the title of Shepherd, and in this character he protected the savant. The curious document of this transaction is still in existence.

In 1773, M. Daubenton obtained permission for one of the professorships of the Collége de France to be changed into a chair of Natural History, and also that lectures should be given at the Museum. It was an affecting sight to behold this old man encircled by his disciples, who received his words with a religious attention, a veneration which converted them into so many oracles; to hear his weak and trembling voice gradually assume its wonted force and energy, when he tried to inculcate some of those great prin-

ciples to which his meditations had given birth, or to develope some useful and important truth. He forgot his years and his weakness when he could be useful to young people, or when he performed his duties. When made a senator, one of his colleagues offered to help him, by giving lectures for him. "My friend," he answered, "I cannot be better replaced than by you, and when age forces me to resign my duties, be sure that I shall burthen you with them;" he was then eighty-three. When thus appointed, he tried to fill his new station as he had done all others; but in order to do this he was obliged to change his manner of living, the regularity of which had, perhaps, contributed to its long continuance. The season was very severe; and the first time he assisted at the meetings of the body to which he was just elected, he was struck with apoplexy, and fell senseless into the arms of his colleagues. The promptest aid could only restore him to life for a few minutes, during which he evinced that desire calmly to watch the operations of nature which had hitherto marked his character. He touched the different parts of his body which were affected, pointed out the progress of the paralysis to his attendants, and expired at the age of eighty-four, without suffering; so that it may be said of him, that he attained, if not the most brilliant, the most perfect happiness for which man is permitted to hope.

Although confining myself to the principal features of the above éloge, I have dwelt on it much longer than will be advisable for the others. Two reasons have induced this; and the first is, the circumstance of its being one of the earliest of M. Cuvier's productions which was read in presence of the Emperor, on whom it made a great impression. The natural style in which it was written, the natural tone in which it was read, amid the reigning affectation, produced the happiest effect; and it was of this that M. D——, celebrated for his apt remarks, observed, "At last we have a secretary who knows how to read and write." The second reason is, that it may be offered as a proof of the innate excellence of M. Cuvier's judgment; it is not the work of a man whose reason was matured by long years of study, whose feelings have been rendered impartial by age; but it was written when the fire of youth is generally apt to be dazzled by some fa-

vourite opinion, is desirous of pointing out its own powers of discrimination by dwelling on the imperfections of others, and when (fame being then dearest) it is but too much inclined to steal into its compositions somewhat of self, some allusion to its own labours and feelings. None of this is perceptible in the éloge of Daubenton, any more than in the rest of M. Cuvier's biographical notices: there is the desire to do honour to his predecessors; there we have laid before us the influence that past labours are likely to shed over the future; there is the strict love of justice, pointing out errors to serve as beacons for those who follow the same career; there is the gentle and unwilling exposure of faults, that desire to admit every circumstance which could palliate the defect; there is the benevolent heart that is so evidently gratified when opportunity is given for commendation; and in each, and in all together, we trace the just celebrity which France has attained from her biographical writers.

Although a shorter notice will suffice for the other éloges, it will be necessary to mention them all, in order to show the variety of the subject, and occasionally to introduce an original passage, not as a better specimen of style than could be found elsewhere, but as combining beauty with general interest. M. Lemonnier, the subject of the second, was head physician to Louis XVI., and a botanist; he spent the greater part of his life in trying to introduce useful plants and trees into France; he solaced the poor, and received no reward from them; he courageously visited his unfortunate master when in prison, and, at eighty-two years of age, died at the herb shop which he had established in order to obtain a livelihood, but where he had been watched over by his nieces with the most devoted attachment, and visited by his friends, who thought his old age rendered doubly honourable by this independent mode of existence.

M. l'Héritier was also a botanist, but of another description, being a strict follower of the system and nomenclature of Linnæus. A curious anecdote, related in this éloge, forcibly developes the character of the man, and at the same time shows the relation he had with England. Always seeking after fresh acquisitions in his favourite science,

and delighting in a knowledge of foreign plants, he heard that Dombey had returned from Peru and Chili with an immense collection, for the publication of which he had long sought the necessary funds. L'Héritier obtained the herbarium from Dombey, allowed him an annual pension, and from that moment no bounds were set to his zeal; painters and engravers were employed, and the work was far advanced, when he received intelligence, that the Spaniards who had accompanied Dombey demanded of the French government that his botany should not be published before theirs, and, consequently, that the herbarium should be restored to Dombey. The order for this restoration was expected the next day, when L'Héritier, consulting only his friend, M. Broussonet, sent for twenty or thirty packers, and the night was passed in making cases. L'Héritier, his wife, and MM. Broussonet and Redouté, packed the herbarium: early the next morning the former posted off to Calais with his treasure, nor rested till he was safe on the English soil. He passed fifteen months there in the most perfect retirement, and was delighted with the kindness he received. The library and collections of Sir Joseph Banks, the herbarium of Linnæus, then in the possession of Sir J. E. Smith, besides the acquisitions of other botanists, were all open to him, and he there finished his manuscript. The plates were most of them completed when he returned to France; but political circumstances, and the duties he was called on to perform as a citizen, prevented the appearance of this great work. The same zeal and activity, united to a most conscientious fulfilment of the labours allotted to him, distinguished him as a magistrate; but neither public nor private virtues could save him from the hand of the assassin. Returning home late one evening from the Institute, he received several stabs from a sword, and was found dead, the next morning, a few paces from his own door.

M. Gilbert was chiefly celebrated as an agriculturist; and he it was who was sent to Spain by the government of France, to procure those beautiful breeds of sheep from that country which had caused such improvements in the English wool. This excellent man's character may be comprehended, when it is known that a friend of his being suspected,

and consequently imprisoned, during the revolution of 1793, he every month carried to the wife of the sufferer the half of his own income, leading her to suppose that the money came from her husband, in order to prevent her from being aware of the destitute state into which she was plunged, or the danger incurred by one so dear. Full of hope, M. Gilbert started on his mission to Spain with the most enthusiastic pleasure, little foreseeing the obstacles and difficulties he should encounter. Badly supported by his government, at times wholly neglected, he for two years was unable even to make the proper purchases, and at length was obliged to pledge his own property in order to extricate himself from the embarrassments caused by the conduct of those in whose promises he had confided. He had flattered himself that all would have been completed in three months, but after two years of painful travelling, incredible fatigue, opposition, and even humiliation of every kind, the flock he had assembled was scarcely by one-third equal to what it ought to have been. His bodily strength at last yielded to all these sufferings, and he was carried off by a malignant fever, after an illness of nine days.

Darcet, the confidential friend of Montesquieu, his assistant in collecting and arranging the immense materials for the "Esprit des Loix," and the preceptor of the young Montesquieu, never lost sight of his chemical researches amid these duties, and he discovered and caused the execution of wonderful improvements in the porcelain of France.

The history of Dr. Priestley is too well known to need much detail here; but as it is one of the most beautiful pieces of biography which has emanated from the pen of M. Cuvier, I shall cite a passage, in his own words, concerning the labours of this great chemist and natural philosopher. "Priestley, comblé de gloire, s'étonnait modestement de son bonheur, et de cette multitude de beaux faits que la nature semblait n'avoir voulu révéler qu'à lui seul. Il oubliait que ses faveurs n'étaient pas gratuites, et que si elle s'était si bien expliquée, c'est qu'il avait su l'y contraindre par une persévérance infatigable à l'interroger, et par mille moyens ingénieux de lui arracher des réponses.

"Les autres cachent soigneusement ce qu'ils doivent au

hasard; Priestley semble vouloir lui tout accorder: il remarque, avec une candeur unique, combien de fois il en fut servi sans s'en apercevoir, combien de fois il posséda des substances nouvelles sans les distinguer; et jamais il ne dissimule les vues erronées qui le dirigèrent quelquefois, et dont il ne fut désabusé que par l'expérience. Ces aveux firent l'honneur à sa modestie sans désarmer la jalousie. Ceux à qui leurs vues et leurs méthodes n'avaient jamais rien fait découvrir, l'appelaient un simple faiseur des expériences, sans méthode et sans vues: 'il n'est pas étonnant,' ajoutaient-ils, 'que, dans tant d'essais et de combinaisons, il s'en trouve quelques-uns d'heureux.' Mais les véritables physiciens ne furent point dupes de ces critiques intéressées."*

There is yet another passage, which, while it so ably pleads the cause of Priestley, places M. Cuvier's candour in so conspicuous a light, that I shall make no apology for introducing it, though it will not be necessary to give it in French. "I am now, Messieurs, arrived at the most painful part of my task. You have just seen Priestley successfully progressing in the study of human science, to which he nevertheless consecrated but a few of his leisure moments. I must now present him to you in another light, wrestling against the nature of those things which are hidden from our reason by an impenetrable veil, trying to submit the

* Priestly, loaded with glory, was modest enough to be astonished at his good fortune, and at the multitude of beautiful facts, which nature seemed to have revealed to him alone. He forgot that her favours were not gratuitous, and if she had so well explained herself, it was because he had known how to oblige her to do so by his indefatigable perseverance in questioning her, and by the thousand ingenious means he had taken to snatch her answers from her.

Others carefully hide that which they owe to chance; Priestley seemed to wish to ascribe all his merit to fortuitous circumstances, remarking, with unexampled candour, how many times he had profited by them, without knowing it, how many times he was in possession of new substances without having perceived them; and he never dissimulated the erroneous views which sometimes directed his efforts, and from which he was only undeceived by experience. These confessions did honour to his modesty, without disarming jealousy. Those to whom their own ways and methods had never discovered any thing called him a simple worker of experiments, without method and without an object "it is not astonishing," they added, "that among so many trials and combinations, he should find some that were fortunate." But real natural philosophers were not duped by these selfish criticisms.

world to his conjectures, consuming almost all his life in these vain efforts, and at length plunging himself into an abyss of misery. Here, like himself, I have need of all your indulgence; perhaps the details into which I am about to enter will, to some, appear foreign to the place in which I speak, but it is here, I think, that the terrible example they give ought to be heard with the greatest interest. I have already told you that Priestley was a minister of religion, and I am forced to add, that he professed four different creeds before he could decide on teaching one of them in his public capacity. Brought up in all the severity of the presbyterian faith, which we call Calvinistic, and in all the bitterness of predestination, such as Gomar taught it, he scarcely began to reflect, before he turned to the milder doctrine of Arminius. But, as he advanced, he always seemed to find too much to believe; he therefore adopted the tenets of the Arians, who, after having invaded Christianity from the time of the successors of Constantine, have now no other asylum than in England, but whose faith is decorated by the names of Milton, Clarke, and Locke, and even, as report says, that of Newton, and whose reputations, in some measure, repair the loss of former power.

"Arianism, while it declares Christ to be a creature, believes him, nevertheless, to be a being of a superior nature, produced before the world, and the organ of the Creator in the production of other beings. This is the doctrine clothed in the magnificent poetry of the Paradise Lost. After having long professed this, Priestley abandoned it, in order to become a Unitarian, or that which we call Socinian. There are few, perhaps, among those who now hear me, who have ever informed themselves in what these two sects differ. It is, that the Socinians deny the pre-existence of Christ, and only look upon him as a man, though they revere in him the Saviour of the world; and they acknowledge that the Divinity was united to him, in order to effect this great work. This subtle shade between two heresies, for thirty years occupied that head which was required for the most important questions of science, and, without comparison, caused Priestley to write more volumes than he ever produced on the different species of air..... His last moments were full of those feelings of piety which had ani-

mated his whole life, the improper control of which had been the foundation of all his errors. He caused the Gospel to be read by him, and thanked God for having allowed him to lead a useful life, and granted him a peaceful death. Among the list of his principal blessings, he ranked that of having personally known almost all his contemporaries. 'I am going to sleep, as you do,' said he to his grandchildren, who were brought to him, 'but we shall wake again together, and, I hope, to eternal happiness;' thus evincing in what belief he died. These were his last words; such was the end of that man, whom his enemies accused of wishing to overthrow all morality and religion, and, nevertheless, whose greatest error was to mistake his vocation, and to attach too much importance to his individual sentiments, in matters where the most important of all feelings ought to be the love of peace."

The subject of the succeeding éloge, M. Cels, was a practical botanist and scientific agriculturist, to whom Paris owes the celebrated garden which bears his name: from him emanated some excellent laws on agricultural interests.

No one but a profound naturalist could have appreciated the merits of M. Adanson; and no one but an impartial and penetrating biographer could have separated his great and rare perfections, from that peculiarity and exaggeration of ideas which led him into error. This traveller visited Senegal, because it is the most difficult of access, the most unhealthy, and, in all respects, the most dangerous of all the French colonies, and consequently, was the least known to naturalists; the continent of Africa was therefore the scene of his discoveries, and to him we owe our perfect knowledge of that giant of the vegetable world, the Baöbab, or, in proper terms, the Adansonia digitata.

M. Broussonet, Professor of Botany to the School of Medicine at Montpelier, was called to the Institute by the section of zoology and anatomy, and after publishing several works on zoology, and passing a life of dangers and unheard-of escapes, died of a coup de soleil.

M. Lassus was a surgeon, and though generally skilful in his profession, was so unfortunate as to bleed a royal patient twice without success. The outcry was universal. "Une princesse piquée deux fois, et qui n'a pas saigné—

quel accident effroyable!" said the courtiers; the physicians shook their heads with a mysterious look; but the princess, being more generous, procured M. Lassus a situation in place of that from which she had been obliged to dismiss him in her household, and by so doing, secured a meritorious and devoted servant, both to herself and the public. With her and her sister he travelled over Italy, at the time of the great revolution; and by producing his port-folios as proofs that he had enriched his country with useful information, evaded the law against emigrants, which would have been enforced against him on his return, and was appointed to the medical school at Paris.

M. Ventenat was a priest and botanist, and, protected by Josephine, described the treasures of her garden at Mal Maison.

The name of De Saussure will ever be dear to geologists; and with his éloge, and that of his uncle, M. Bonnet, the naturalist of Geneva, the first volume closes. In this combined éloge is a passage in which M. Cuvier's talents for description show themselves; and as it is almost an isolated instance in his published writings, I here quote it:—"Comme le voyageur est ravi d'admiration, lorsque, dans un beau jour d'été', après avoir péniblement traversé les sommets du Jura il arrive à cette gorge, où se deploie subitement devant lui l'immense bassin de Genève, qu'il voit d'un coup d'œil ce beau lac dont les eaux réfléchissent le bleu du ciel, mais plus pur et plus profond; cette vaste campagne, si bien cultivée, peuplée d'habitations si riantes; ces côteaux qui s'élèvent par degrès et que revêt une si riche végétation, ces montagnes couvertes de forêts toujours vertes; la crête sourcilleuse des Hautes Alpes, ceignant ce superbe amphithéâtre, et le Mont Blanc, ce géant des montagnes Européennes, le couronnant de cette immense groupe de neiges, où la disposition des masses et l'opposition des lumières et des ombres, produisent un effet qu'aucune expression ne peut faire concevoir à celui qui ne l'a pas vu.

"Et ce beau pays, si propre à frapper l'imagination, à nourrir le talent du poëte où de l'artiste, l'est, peut-être, encore d'avantage à reveiller la curiosité du philosophe, à exciter les recherches du physicien. C'est vraiment là que la

nature semble vouloir se montrer par un plus grand nombre de faces.

"Les plantes les plus rares, depuis celles des pays tempérés jusqu'à celles de la Zone Glaciale, n'y coûtent que quelques pas au botaniste; le zoologiste peut y poursuivre des insectes aussi variés que la végétation qui les nourrit; le lac y forme pour le physicien une sorte de mer, par sa profondeur, par son étendue et même par la violence de ses mouvemens; le géologiste, qui ne voit ailleurs que l'écorce extérieure du globe, en trouve là les masses centrales, relevées et perçant de toute part leurs enveloppes, pour se montrer à ses yeux; en fin, le météorologiste y peut à chaque instant observer la formation des nuages, pénétrer dans leur intérieur, ou s'élever au-dessus d'eux."*

The second volume opens with the éloge of Fourcroy,—the brilliant, the eloquent, the calumniated Fourcroy. The struggles of his youth, and his vigorous resistance of injustice and poverty, the account of his discoveries,—all form one of the most powerful pieces of biography ever read. The following description of his lectures recalls those of the author, and, in many instances, is equally applicable to

* How delighted is the traveller when, in a beautiful summer's day, after having with difficulty traversed the summits of the Jura, he arrives in this ravine, where the immense bason of Geneva suddenly opens before him, when at one glance he sees this beautiful lake, the waters of which reflect the blue of heaven more deeply and more purely: this vast country, so well cultivated and peopled by smiling habitations; the hills which rise by degrees, clothed with the richest vegetation; the mountains, covered with evergreen forests; the frowning crests of the High Alps, above this superb amphitheatre; and Mont Blanc, the giant of European mountains, crowning the immense group of snows, where the disposal of the masses, and the contrasts of light and shade, produce an effect which no expression can convey to those who have not seen it.

And this beautiful country, so calculated to strike the imagination, to feed the talent of the poet or the artist, is perhaps still more so to awaken the curiosity of the philosopher, and to excite the researches of the follower of natural philosophy. It is truly there that nature seems to delight in showing herself under a number of different aspects.

The rarest plants, from those of temperate countries to those of the Frozen Zone, only cost the botanist a few steps. The zoologist may there pursue insects as varied as the vegetation which nourishes them. The lake there forms, from its depth and extent, and even its violent movements, a sort of sea for the natural philosopher; the geologist, who, elsewhere, sees but the external rind of the globe, there finds central masses, thrown up, and in every part piercing their envelopes, and showing themselves to his eyes; lastly, the meteorologist can there observe the clouds at every instant, penetrate within them, or raise himself above them.

both :—" For five and twenty years the amphitheatre of the Jardin des Plantes was the centre of M. Fourcroy's glory. The great scientific establishments of this capital, where celebrated masters expose to a numerous public, capable of passing judgment on them, the most profound doctrines of modern times, recall to our memory that which was noblest in antiquity. We fancy we again find in these assemblies a whole people animated by the voice of a single orator; and again see those schools, where chosen disciples came to penetrate the oracles of a sage. The lectures of M. Fourcroy corresponded to this twofold picture: Plato and Demosthenes seemed to be united in him; and it is almost necessary to be one or the other, to give an idea of them. Connection of method, abundance of elocution, elevation, precision, elegance of terms, as if they had been selected long beforehand; rapidity, brilliancy, novelty, as if suddenly inspired; a flexible, sonorous, and silvery voice, yielding to every motion, penetrating into the corners of the largest audience-room;—nature had bestowed every thing on him. Sometimes his discourse flowed smoothly and majestically; the grandeur of his metaphors, and the pomp of his style, were all imposing; then, varying his accents, he passed insensibly to the most ingenuous familiarity, and fixed attention by sallies of the most fascinating gaiety. Hundreds of auditors, of all classes, all nations, were to be seen, passing whole hours, closely pressed against each other, almost fearing to breathe, their eyes fixed on his, suspended to his mouth, as the poet says (pendent ab ore loquentis.) His look of fire darted over the crowd; in the farthest rows he distinguished that mind which was difficult to convince, and still doubted, or the slow comprehension which did not completely understand; for these he redoubled his arguments and his similes, and varied his expressions until he found those which would convince; language seemed to multiply its riches for him, and he did not quit his subject till he saw all his numerous audience equally satisfied."

It is scarcely possible to mention Fourcroy, without recollecting the odious suspicion attached to his name;* I there-

* It was reported that he might have saved the life of M. Lavoisier during the reign of terror, as indeed he had saved many by his influence; but, at the moment of M. Lavoisier's arrest, his own life was threatened,

fore give M. Cuvier's observations, taken from the same éloge:—"Perhaps I may be blamed for recalling these sad recollections; but where a celebrated man has been so unfortunate as to be accused, as M. Fourcroy was,—where this accusation occasioned the torment of his life,—the historian would in vain strive to bury it in oblivion, by being himself silent. We ought now to say, that if, in the strict researches we have made, we had found the slightest proof of so horrible an atrocity, no human power could have forced us to sully our lips by his éloge, to make the roofs of this temple resound with our praises,—this temple, which ought to be no less the asylum of honour than of genius."

To Dessesserts, the physician, and subject of the next éloge, the French owe the banishment of those horrible machines of whalebone, those swathing clothes, those hothouses, where the minds and bodies of infants were imprisoned from their birth. By M. Dessesserts were those mothers recalled to their duty, who abandoned the nourishment of their offspring to others, when capable of affording it themselves; and, though unacknowledged, to M. Dessesserts was Rousseau indebted for the first pages of his Emile.

The next subject of biographical notice is Henry Cavendish, that remarkable Englishman, who, notwithstanding his splendid fortune and his noble birth, pursued science with the most disinterested ardour. How M. Cuvier appreciated his labours, will be gathered from the following passage:—"All that science revealed to him, seemed to be tinctured with the sublime and the marvellous: he weighed the earth, he prepared the means of navigating through the air, he deprived water of its elementary quality; and these doctrines, so new, and so opposed to received opinions, were demonstrated by him in a manner still more extraordinary than the discovery itself. The writings where he lays them before others, are so many chefs-d'œuvre of wisdom and method; perfect in their whole, and perfect in their details, in which no other hand has found any thing to reform, and the splendour of which has only increased with time.....

and all power of being useful to others was taken from him. Lavoisier fell a victim to the revolutionary monsters, and M. Fourcroy was accused of taking a part in that which freed him from a powerful rival.

so that there can be no temerity in predicting, that he will reflect back upon his house much greater lustre than he has received from it; and that these researches, which, perhaps, excited the pity and contempt of some of his contemporaries, will make his name resound, at an age to which his rank and his ancestry alone would not have transmitted it. The history of thirty centuries clearly teaches us, that great and useful truths are the sole durable inheritance which man can leave behind him."

The next in the list of great names is that of Pallas, the enlightened and sagacious traveller of the north of Asia, the inhabitant of the Crimea, and the learned and indefatigable naturalist.

The éloges of M. Parmentier and Count Rumford are combined, and commence with a sort of introduction to the useful labours of each; labours which bore so strongly on the means of affording warmth and nourishment to the poorer classes. The former, who had learned the value of the potato as an article of food in the prisons of Germany, overcame the prejudices entertained against them in France, where they were said to produce leprosy, fevers, and no one knows what diseases. His mode of rendering them popular and desirable was curious; for he began by cultivating them in the open fields, and causing them to be carefully guarded by day only: he was but too happy when he was informed, that this apparent caution had induced depredation by night. He then obtained from the king of France the favour of wearing a bunch of potato blossoms in the button-hole of his coat, at a solemn fête; and nothing more was required to cause some of the great lords of the kingdom to order its cultivation on their estates. Not, however, till the last years of his life, was he completely successful; and during the great Revolution he was rejected as a magistrate, because he had *invented* potatoes.

Benjamin Thompson, Count Rumford, was an American by birth, and served as a royalist in the war between America and England. After the peace he came to the latter country, where he was knighted by George III., and recommended by that sovereign to the protection of the Elector of Bavaria, at whose court he rose to the highest dignities. It was then that he turned his attention to the state of the

poor, and, in trying to find means for meliorating their condition, he made those beautiful discoveries which have benefited all classes. The labours and character of the oriental traveller, Olivier, are then noticed, and the history of this excellent man furnishes another proof of the immense influence, that a knowledge of medicine will produce among uncivilized people.

M. Tenon, the surgeon, is afterwards presented to us. His youth was passed in a series of struggles; his maturity was beautiful, and he reached the age of ninety-two without intellectual infirmity.

The éloge of the famous Werner is in every respect interesting, for in it we find a brief résumé of all that was done by this great man, together with the peculiarities which deprived the world of the written results of his labours and extensive knowledge; he having preferred to trust his reputation to the justice of his disciples, rather than have recourse to his own pen for transmitting it to posterity.

The life of Desmarets follows:—Desmarets the antagonist of Werner, the champion of volcanoes; he in whose discoveries originated the famous disputes between the Plutonians and Neptunians, and which disputes not only placed the whole world between fire and water, but occasioned more animosity than any question which had hitherto agitated the learned world.

To this second volume are added two éloges read before the Philomathic Society of Paris, the discourse of M. Cuvier on his reception at the Académie Française, and the reply of the director of that Academy. The first of these two éloges is that of M. Riche, whose life resembles that of a hero of romance, and whose feelings and adventures, perhaps, caused his death at the age of thirty-five. The second is that of M. Bruguière, the companion of Olivier, already noticed. The discourse of M. Cuvier assumes a tone in which the nature of his professional studies scarcely ever allowed him to indulge, but in which we trace the same perfection as elsewhere. It is full of classical and elegant allusions; it is the production of a man of letters, and shows how admirable is the combination when science and literature occupy the same mind. In the reply of the Count de

Sèze will be found a very admirable résumé of M. Cuvier's labours up to that period.

The third volume begins with the éloge of M. de Beauvois, the African traveller, to whom the world owes the Flora of Owaree and Benin; and who, after wrestling with the storms both of this continent and those of America, died in consequence of the sudden changes to which a European climate is so frequently liable. In this biography are some remarkable passages concerning slavery.

M. Cuvier's brotherly feeling,—his gratitude, if I may so express myself,—towards all promoters of science, is nowhere more strongly manifested than in his eulogium on Sir Joseph Banks, the distinguished and munificent patron of scientific labourers. The travels and adventures of Sir Joseph are here related with vivacity; and the famous dispute about points and buttons to electrical conductors, which placed him at the head of the Royal Society, and which, in other hands might have afforded much scope for ridicule, is touched on with a delicacy peculiar to M. Cuvier's disposition. Nor is this éloge less remarkable for the honourable testimony given to a nation which has been but too often regarded with jealousy, and which has but too often met these sentiments with a reciprocal feeling. "The savans of England," says the Baron Cuvier, "have taken an equally glorious part in those mental labours which are common to all civilized people: they have confronted the eternal frosts of either pole; they have not left a corner of the two oceans unvisited; they have increased the catalogue of nature tenfold; heaven has been peopled by them with planets, statellites, and unheard-of phenomena; we may almost say that they have counted the stars of the milky way. If chemistry has assumed a new aspect, the facts they have furnished have essentially contributed to this metamorphosis. Inflammable air, pure air, phlogistic air, are due to them; they have discovered the decomposition of water, and a number of new metals have been produced by their analyses. The nature of fixed alkalies has only been demonstrated by them; mechanism, at their voice, has given birth to miracles, and placed their country above all others in almost every species of manufacture."

The mineralogist, M. Duhamel, appeared at a time when

De Saussure had not travelled, Deluc had not written, nor Werner, by the force of his extraordinary genius, arranged the mineral universe; and, after years of scientific labour, was appointed to the Ecole des Mines, established in Paris; and in tracing his influence in this professorship, M. Cuvier thus speaks:—"Our products in iron are quadrupled; the mines of this metal opened, near the Loire, in the region of coal, and in the midst of combustible matter, are about to yield iron at the same price as in England. Antimony, manganese, which we formerly imported, are now exported in considerable quantities. Chrome, discovered by one of our chemists, is also the useful product of one of our mines. Zinc and tin have already been extracted from the mines on the coast of Britany. Alum and vitriol, formerly almost unknown in France, are collected in abundance. An immense mass of rock salt has just been discovered in Lorraine; and all promises that these new creations will not stop here. Doubtless, it is not to a single man, nor to the appointment of a single professorship, that all this may be attributed; but it is not the less true, that this one man, this one professorship, has been the primary cause of these advantages."

The name of M. Haüy, the geologist, the mineralogist, the founder of crystallography, forms a sort of oracle in the learned world, and I have a peculiar pleasure in dwelling on this éloge, because it is one of the most admirable of all, and does honour to M. Cuvier's heart, showing how entirely he was independent of selfish feelings, how truly just he could be, even to those who had opposed him with hostile sentiments. The extraordinary man here spoken of commenced the world as a chorister, and studied natural philosophy and botany as amusements. These tastes led him frequently to the Jardin des Plantes, in Paris; and chance took him one day, with the crowd, into the amphitheatre, to hear M. Daubenton lecture on mineralogy. Mineralogy henceforth became interesting to him; and chance equally befriended him in this new direction of his pursuits. Happening to examine a mineral at the house of a friend, he accidently let fall a beautiful group of calcareous spar; the fracture of one of the prismatic crystals opened a new world of ideas to him, and he became the M. Haüy, the legislator

of mineralogy, the founder of a system which has been adopted all over the world. Imprisoned during the fury of the Revolution, he tranquilly pursued his studies in his cell, and was with difficulty torn from it by his friend, M. Geoffroy St. Hilaire, on the fatal 2d of September. In 1802, he was appointed Professor to the Museum of Natural History. Pious, benevolent, tolerant, and devoted to his studies, no worldly considerations ever intercepted his religious exercises nor his scientific labours; and his mode of living was as simple as the station from which he sprung: he walked in the same places every day, took the same exercise, wore the same fashion of clothing, and his manners and language were equally remarkable for their primitive simplicity. A fall in his own room occasioned a fracture from which he never recovered; but, during the long hours of pain which preceded his death, he divided his time between prayer, a careful edition of his works, and the future fate of his pupils.

Count Berthollet was a chemist, of the most elevated rank; and to him is due the discovery of the present method of bleaching linen, and many improvements in dyeing.

M. Richard came into the world at Autuil, a garden belonging to Louis XV., of which he afterwards became the chief; and, born in the midst of plants, he knew their names before he could read, and could draw them before he could write correctly. To the study of botany was his whole life devoted; for this he perfected himself in drawing, and became acquainted with the Greek and Latin languages; for this he refused advantageous offers in the church; and for this he was turned out from the paternal dwelling, with the scantiest pittance. Drawing by night, and studying botany by day, he by degrees accumulated money, but this money was for his favourite science. He was sent to the French colonies in America, to propagate Indian productions, and discover which of theirs could in turn be made useful. Laden with treasures he returned to France, but all there was changed; M. de Buffon was dead; the government unskilful and in confusion; no one recollected the promises made to him, and people whose heads were hourly in danger, cared little for the cloves of Cayenne. Enfeebled in health, exhausted in fortune, and unable to look forward

to better times, M. Richard had to re-commence the same sort of life which he had led at fourteen years of age. As a man of science he remained as great as ever; his dissertations were astonishing proofs of the extent and sagacity of his views; but his temper, soured by so many misfortunes, never recovered its tone, and he died, at the age of sixty-seven, after much bodily and mental suffering.

Few who have been in the habit of visiting the Jardin des Plantes within the last forty years will be ignorant of the name, at least, of M. Thouin. He there succeeded his father as head gardener, and uniting science and the most enlightened views to practical knowledge, and placing his affections on the improvement of his garden, he became a centre of correspondence for all parts of the world. His fine countenance, noble and engaging deportment, and his interesting conversation, caused him to be sought by the most elevated, as well as the most humble, in the ranks of life. He died in 1824.

The Count de Lacépède is presented to us in three different points of view; first, as a practical and theoretical musician of considerable skill; secondly, as a man of science; and, thirdly, as a statesman; and crowning the whole by mingling the most invariable politeness, the most amiable deportment and feeling, and highest moral excellence, with all his duties. He died, at the age of sixty-nine, of the smallpox.

The éloges of MM. Hallé, Corvisart, and Pinel, three great physicians, are united into one. The first of these was the active promoter of vaccination, was skilful in his treatment of chronic disorders, and was equally celebrated for his charity. M. Corvisart, who lost several opportunities of promotion because he would not wear a bag wig, was at length appointed to the direction of the Hôpital de la Charité, and afterwards to a professorship at the Ecole de Médecine. His fame spread through Europe, and, before he died, he became head physician at court. M. Pinel prepared himself for the study of medicine by a knowledge of mathematics and natural history, but, unable to express himself, in consequence of a most invincible timidity, he was long neglected. When, however, his merits once became known, he rose rapidly in fame; he was appointed to the

hospital of Bicêtre; thence to that of the Salpêtrière, and afterwards to a chair at the Ecole de Médecine. He was particularly famous for his classification of diseases, and his treatment of madness.

It would be impossible, in the brief sketch to which I am limited, to do justice to the éloge of M. Fabbroni, who, from the variety of his genius and knowledge demanded equal variety from his biographer; and all that can be done is to show a portion of the talents which have elicited this remark. Like most of those who have attained great celebrity, the early years of M. Fabbroni were passed in struggle and difficulty. His first work was entitled, "Reflections on the Present State of Agriculture; or, an Exposition of the True Method of cultivating (landed) property." He became subdirector of the beautiful museum at Florence, where he founded lectures. Driven from this establishment by Marie Louise, Queen of Etruria, he yet continued to serve his country; and while carrying on various administrative duties, published his own useful ideas concerning the arts, agriculture, political economy, and the general questions connected with the profoundest theories of science. The wines of Italy were greatly improved by his means; and Tuscany, being destitute of fuel, the grand Duke applied to M. Fabbroni to assist in finding coal; and both Leopold and his son continued to protect him, and to profit by his administrative and scientific talents. When all Italy was alarmed at the conquests of the French, M. Fabbroni sought refuge in his chemical studies, as applied to the useful arts; and when Tuscany had recognised the French republic, he was charged with a mission to France, concerning the unity of weights and measures. Being in Paris at the time that war was declared against Austria and Tuscany, he obtained permission for a special conservator to be sent to Florence to preserve the collections there; and in consequence of his care, the only thing taken from thence was the Venus de Medicis, and which, in fact, had been clandestinely abstracted before the arrival of the French, and given up to them by the King of Naples. The whole of M. Fabbroni's life was a scene of active service; and we find him, at one time, charged with delicate political missions; at others, with the direction and administration of the mint at Florence;

seeking the causes of pestilence, and the means of prevention; making roads, fixing conductors for lightning, and aiding the state by his counsels. France employed him in the departments beyond the Alps, as director of bridges and highways; and in this capacity he caused new roads to be made in every direction, bridges to be thrown over fearful torrents, and two magnificent military causeways, which, raised along precipitous crests, supported by arches of prodigious elevation, and occasionally piercing the bosom of these rugged mountains, have made an agreeable walk of that which was formerly frightful to the imagination.

To these two éloges succeed two funeral discourses; one delivered at the interment of M. Van Spaendonck, the professor of botanical drawings at the Jardin des Plantes, an artist whose productions attained the highest perfection; and the other at the grave of the great astronomer, M. Delambre. The latter was a personal friend of M. Cuvier's; and in this discourse which was not of sufficient extent to admit of an enumeration of his labours, his excellent character as a man received its just tribute from the lips of his colleague.

The volume is closed by two of those admirable reports, in which M. Cuvier always displayed his genius and acquirements in their full strength. In the first, which is on the progress of natural history between the maritime peace and the year 1824, will be found an account of the important travels of that period. The second treats of the principal changes which chemical theories have undergone, and of the new services rendered by this science to society at large, and was read at a general meeting of the four academies, in 1820.

The forthcoming volume of these éloges will, if nothing unforeseen should occur, be shortly published, and will contain those of M. Ramond, the Pyrennean traveller; M. Bosc, the successor of M. Thouin; Sir Humphrey Davy, M. Vauquelin, and M. Lamark; some funeral orations; M. de Lamartine's discourse on his reception as a member of the Institute, with M. Cuvier's reply; and a new edition of the Prix de Vertu. These have all been read in public; but of course, when printed, a freer scope is given to detail; for no one knew better than M. Cuvier how to fascinate a numerous audience, by a choice of what was generally interesting,

or to avoid the ennui produced by too long a demand on their attention.

It is for ever to be regretted, that the last course of lectures delivered by M. Cuvier has been comparatively lost to mankind in general. The hall at the Collège de France resounded with these luminous discourses, taken at the moment from mere memoranda, and now only existing in the memory of his auditors. He was extremely averse to short-hand notes, because he thought them very inadequate to the purposes of publication; and he had no time, he said, either to edite them, himself, or correct the editions of others. The glimpses (for they can only be called such) given in the feuilletons of the Temps, and in the pamphlets compiled by M. Magdeleine de Saint Agy, were then published entirely without his sanction, and the latter even without his knowledge; but imperfect as they are, they yet assist in giving a general idea of the plan that was followed.

Conscientiously fulfilling some of the most important duties of the state, equally devoted to those of his different secretaryships and professorships, and daily progressing in the most profoundly scientific works and discoveries, it is no wonder that he rarely found time for a course of lectures. At length, however, struck with the errors which he perceived in the system of unity of composition, and fearing the injurious direction that such ideas might give to youthful studies, he combated them solely for the love of science; and his health fortunately permitting, he for this purpose resumed his chair at the college, and, taking for his subject the entire history of natural sciences, he, in this series, seemed to carry learned research, precision, clearness, sound and elevated views proceeding from the deepest thought and erudition, and a pre-eminent power of separating truth from error, to the highest degree to which man could attain. The charms of his flexible and sonorous voice, which could be heard every where in its sweetest tones, the benignity and animation of his countenance, attracted each sex and various ages. In the coldest weather, the audience assembled an hour before the time, and some were contented to remain on the stair-case, provided they could catch some of his melodious words; and

the enthusiasm with which he was received, while it endangered his personal convenience, called forth that benevolent smile which was calculated rather to encourage than repress these marks of admiration.

"The fundamental principal of these lectures," says M. Laurillard, "was, that society having been developed by the discovery of the natural properties of bodies, each of these discoveries has a corresponding degree of civilization; and therefore the history of this civilization, and consequently of all humanity, is intimately connected with the history of natural sciences." In order to be fully in possession of his subject, how immense must have been the research of M. Cuvier! and nothing but a review of his whole life seems to account for his capability. Several have been able to elucidate particular periods to the study of which they have devoted themselves; but his researches embraced all historical and philosophical science. He consulted all books, in order to go back to the origin of discoveries; and the judgment necessary for the employment of materials thus collected was so much the greater, inasmuch as writers frequently state but the germs of their ideas, and leave facts almost as obscure as they are in nature.

The first, or opening lecture, divided the progress of science into three epochs; the religious, more especially emanating from the Egyptians and Hebrews; the philosophical, which commenced in Greece; and the third, the beginning of which may, perhaps, be traced to Aristotle, though its importance can only be dated from the sixteenth century. In this lecture were also discussed the age of the world, the vestiges of the great deluge, and the value of the astronomical records of primitive nations.

The second lecture gave a sketch of the four great nations constituted at the remotest period before Christianity, and of which history gives us any certain information. The extent of their knowledge was measured; the influence of that knowledge appreciated; and, in speaking of Moses, M. Cuvier said that, although Moses was brought up in all the learning of the Egyptians, he foresaw the inconveniences of, and laboured much to abolish their practice of veiling the truth under mysterious emblems. That Moses was in possession of that truth was evident from

his system of cosmogony, which every discovery of recent times serves but to confirm. The progress of the nations who sprung from the Egyptians, the diffusion of their learning, the bards, the philosophers, the schools of Greece, were given with a most absorbing interest and beauty, and occupied six lectures. In the eighth, he began his history of Aristotle, the founder of the science of natural history. As might be expected, M. Cuvier became, if possible, more eloquent, more fascinating than ever. The subject was likely to inspire him, and his audience were not disappointed; they left the lecture-room, forgetting their favourite professor, for the moment, in his description of his great predecessor.

The twelfth lecture was devoted to the advantages which accrued to science, in consequence of the labours of Aristotle. From these the Professor passed to a rapid sketch of the history of the Ptolemies; and before he laid the world before his hearers, in the state in which it was under the dominion of the Romans, he glanced over the Carthaginians and Etrurians. Having at length reached the masters of the globe, he gave a full description of those magnificent feasts, and those combats of animals, which put every known quarter of the earth under contribution, and passed all their learned men in review. Then tracing the state of science during the great struggles which established Christianity, and during its languid existence in the Byzantine Empire, M. Cuvier led the attention towards the Arabs, who cultivated some branches with success. He then followed it into the different nations composed of the wrecks of the Western Empire, and through the slight glimmerings of existence shown during the middle ages, and throwing the same deep tone of interest over every epoch, the revival of letters gave fresh scope to his discourse. It was no longer a mere dawning, or a decay, which at times seemed hopeless; but it was a series of brilliant discoveries, which spread their influence over the remotest parts of the world; and, beginning with printing, he, in his opening lecture to the second part of his course, premised, that he should no longer be able to enter into those details which had accompanied his account of preceding ages. The subject became too vast, and during

the seventeenth, eighteenth, and nineteenth centuries, the number of authors multiplied to such a degree, that it was impossible for him to do more than select the most important, and he was obliged to divide science itself into several branches, in order to be more easily comprehended. The first branch thus noticed was anatomy, the progress of which he traced to the middle of the seventeenth century. He in like manner treated zoology, and the travels which threw light upon it. He then proceeded to botany, mineralogy, and chemistry, bringing each down to the same period.

The discoveries of Galileo and Descartes were considered in the eleventh lecture of the second course, and the influence they and their writings shed over natural sciences. To this influence may be attributed the formation of the different academies of science, the history of which, together with that of the celebrated men who composed them at their commencement, formed a most interesting lecture. Then, having proved by cited works and discoveries, that the seventeenth century was the great era of science, and having finished the history of this period in all its scientific bearings, M. Cuvier closed his second course by summing up all that had been said in an abridged form.

The third course began with the eighteenth century, which, like its predecessors, passed in review, though from its importance and activity, it, in several instances, required even more division into parts, and various features of it demanded especial notice. To Buffon, for instance, M. Cuvier devoted two entire lectures, which at the time were thought to be the most beautiful and eloquent he had ever delivered. This third course was interrupted from the preceding Easter till the December following, when he reopened it for the purpose of continuing his history from the time of Buffon. He first gave a clear and eloquent résumé of the philosophy of Kant, of Fichte, and of Schelling; and one day in every week was set apart by him, notwithstanding his increased duties as a peer of France, for the continuation of this immense undertaking. The interval of repose which followed, and which was absolutely necessary for his health, was prolonged much beyond his calculation by the dreadful visitation of the cholera;

but on the 8th of May, 1832, he again resumed the chair with one of his most impressive and elevated discourses. Never had he spoken with more fire, nor with more ease to himself: he "could have continued for two or three hours longer," he said, "had he not been afraid of tiring his audience." But they had heard him for the last time, and this lecture, the memorable words it contained, and the effect it produced, seem to me to be so inseparable from his death that, for a further description of it, I must refer the reader to the last portion of this volume where the sad details of the closing scene are related at length. And now having endeavoured, though I fear but with inadequate success, to describe M. Cuvier's scientific labours, I cannot do better than return to that part of his works, which it is here the principal object to illustrate. The two examples offered of his familiar style of writing, belong to his private character; and, in the first, written to Madame Cuvier immediately after starting for one of his journeys, the man, the husband, and the father, are so simply and unconsciously exposed, that I cannot be too thankful for the permission to make it public. The second was addressed to M. Valenciennes, during the last illness of M. Cuvier's daughter, and both speak too forcibly for the writer to require any further comment.

Pont Sainte Maxence,
Dimanche, 19 Mai, 1811. Soir.

Ma tendre amie,

Le temps, les chemins, les cheveaux et les postilions se sont trouvés si excellens, que nous sommes arrivés à Pont Sainte Maxence avant six heures, et que j'ai amèrement regretté les deux ou trois bonnes heures que j'aurais pu passer encore avec toi, sans retarder en rien le terme de mon voyage; crois du moins que je les y passe bien en imagination, et que le souvenir de tes caresses, et de ta douce amitié fera le bonheur de toute ma route. Dis je te prie à Sophie combien j'ai été touché de ses adieux; dis-le aussi à ma bonne Clémentine; pour Georges, il ne pensait encore qu'au malheur de ne plus avoir des bêtes tous les soirs, mais je te prie de lui en promettre, et même de lui en donner quelques fois de ma part, en bois, en plomb, ou en toute autre

matiére solide, car il m'a trés bien fait remarquer ce matin, que des bêtes en gravure ne pouvaient pas se tenir debout. Ce pauvre enfant ne se doute pas combien il pourrait rencontrer chaque jour des bêtes qui se tiendraient debout. Ma bonne amie, nous nous portons bien; nous avons parcouru un pays agréable; nous sommes dans un auberge supportable; notre voitue parait vouloir résister: ainsi jusqu'à ce moment tout s'annonce bien. Prie Dieu que cela dure: tu es si bonne qu'il ne peut te refuser. Adieu. Mille tendres baisers.

G. C.

LETTER I.

Ponte Sainte Maxence,
Sunday evening, 19th May, 1811.

My tender Friend,

The weather, the road, the horses, and the postilions, have proved so excellent, that we have reached Pont Sainte Maxence before six o'clock; and I have bitterly regretted the two or three good hours that I could still have passed with thee, without in the least retarding the end of my journey. At least, believe that I have passed them in my imagination, and that the remembrance of thy caresses and tender friendship will form the happiness of my whole way. I beg of thee to tell Sophie how sensible I was to her adieus; say the same to my good Clementine: as to George, he only thought of the unhappiness of not having any more *bêtes* every evening, but I ask of thee to promise him some, and even to give him some occasionally, as from me, in wood, in lead, or any other solid substance; for he aptly remarked to me this morning, that the *bêtes* in engravings could not stand upright. The poor child does not think how often he may daily meet with *bêtes* who do hold themselves upright. We are quite well my good friend; we have traversed an agreeable country; and we are in a tolerable inn. Our carriage appears to be quite able to bear the journey; thus, up to this moment, all goes well. Pray to God that this may last; thou art so good that he cannot refuse thee. Adieu. A thousand tender kisses.

LETTER II.

My dear Friend,

You have done well to go to Leyden, as you will there collect new materials; besides, at this moment you would only see a spectacle of desolation. My poor daughter is very ill; and alarm and affliction torment me too much to allow me to devote myself to any regular occupation. Take care of the autumnal fevers. Give my compliments and thanks to M. Temminck. Adieu.

PART III.

I am now arrived at that part of the Baron Cuvier's labours which is least known in this country, and certainly the least understood, on account of the marked differences which must always exist between the legislature of two nations so dissimilar in feeling and character as England and France. Before I enter upon this subject, however, I must request my readers to bear in their memory these three things:—First, that the improvement of the human mind and morals was the Baron Cuvier's sole and real ambition; secondly, that his leading inclination was the advancement of science, which he considered the best auxiliary of his views on mankind; and thirdly, that the great maxim and rule of his life was order. Whatever tended to derange these was avoided by him with the most scrupulous care; whatever tended to their advancement was most cherished by him. He loved his places, because they gave him the power of executing his great and benevolent views, and he preferred that mode of government which lent most aid to his enlarged and philanthropical schemes. At the same time, he steadily and firmly rejected every thing which would have disturbed that internal repose of conscience which was absolutely necessary to the exertion of his own powers.

It is not to be supposed, because M. Cuvier supported every government under which he lived, defended its laws, its institutions, and its existence itself, in his temporary office of Commissaire du Roi*, as counsellor of the University, and Counsellor of State, that he was blindly attached to existing forms. On the contrary, he wished for, he sought amendment and correction; but his knowledge of the history of all nations, the experience of his youth, taught him, that the sudden subversion of these forms and institutions produced anarchy and confusion, and stagnated every

* The office of Commissaire du Roi is, to defend all the bills brought before either House by the ministry.

thing like progress; and what he demanded was, that every attempted improvement should be the result of deep thought, calm discussion, and vigorous search after the necessity of its taking place. He felt that the passion for innovations of all kinds, which characterized the times in which he lived, produced a constant change of systems, which was calculated rather to destroy than to improve, and, consequently, his actions and counsels were conservative, yet progressive. "He was always the mediator between the time passed and the time to come—between France and other nations; he resisted the antipathy of his countrymen against those whom they chose to call barbarous; and with his whole force always tried to stem the torrent which their vanity and versatility occasionally poured over that which was wise and useful."

It has frequently been remarked, with great bitterness, that M. Cuvier held more places than any man had a right to monopolize. The best answer to this attack is, the manner in which he fulfilled the duties attached to them; a fact easily ascertained now they have passed into other hands, though his career alone can show, how the income of the statesman furnished the savant with the means of carrying on his labours; how the counsellor of his sovereign protected the naturalist; and how "the new Aristotle became his own Alexander."

It would be difficult to decide in which part of his public life Baron Cuvier's talents were most pre-eminent; the affairs of the University alone would have sufficed for most men; for not only were the letters, notes, and remarks which proceeded from his pen in this service innumerable, but, besides these every-day labours, of which the heads of the departments only can form a just calculation, he wrote a mass of Memoirs and Reports, either to enable the directing ministry to comprehend the nature of this institution, or to furnish them with arguments for its defence against its many enemies. Appointed to be one of the members of the Council of the University (1808,) he soon attracted the notice of the Grand Master, Fontanes, who named him Commissaire of a discussion about to take place in the Council of State in the presence of Napoleon, respecting the Imperial University. M. Regnault de St. Jean d'Angely, who spoke

against the university, supported his opinion with much warmth, and with all the talent he so eminently possessed. M. Cuvier replied to him, and Napoleon who had listened to both with the greatest attention, turned towards M. Regnault, and said, "Je crois que vous êtes atteint et convaincu d'avoir tort," &c.* This circumstance, and the reports made by M. Cuvier after his return from Italy and Holland, led the Emperor to appreciate his legislative talents, and to appoint him Maître des Requêtes† in the Council of State. His high opinion went still further; for he ordered M. Cuvier to select a library for the use of the King of Rome in his education. The list was made, and laid before Napoleon at the Thuilleries, when the expedition to Russia put an end to all these projects.

Raised to the rank of Counseller of State‡ in 1814, M. Cuvier's powers of defence were constantly called forth in favour of the body of which he formed a part; and not only did he shield it from the attacks made upon it, but he was often obliged to teach the very ministers the part it played in the government, and the importance to themselves of preserving this institution. The ministerial archives of France contain many of his Memoirs on this subject, by which he demonstrated the necessity of separating the judicial from the administrative part of government, as ordered by the Constituent Assembly; at the same time, that this could not be effected without the creation of a Council of State. The duties of this body are, to prepare laws, to examine ordonnances, and to decide whether the complaints brought against the authorized agents of the government require judicial proceedings. It is composed of enlightened men, who offer a better chance of impartiality than if they themselves were attached to the offices filled by the offending parties. In a very few years after he was admitted to

* I believe that you stand impeached and convicted of being wrong, &c.

† The office of the Maîtres des Requêtes is, to examine all questions about to be brought forward in the Council of State, to report upon them to the Council, and to give their own opinions concerning the matter.

‡ This appointment astonished several of those who were about the Court, and one who was allowed to converse with Napoleon having asked him why he called a savant to the Council of State, the Emperor replied, "that he may be able to rest himself sometimes;" well knowing, that to a man like M. Cuvier the best repose was a change of occupation.

the Council of State, we find M. Cuvier appointed President of the Comité de l'Intérieur,* and from this time his legislative duties were so mingled with those belonging to the University, that it becomes difficult, and, in fact, almost impossible, to speak of them separately. Called to these important charges when all required to be revived and re-organized, it is scarcely possible for us to conceive the difficulties that were presented to him: but with what vigour and talent did he put all into action! Public Instruction being attached to the Presidency, he was obliged to draw out the plans for study; to regulate the discipline of the schools; to decide according to the actual necessities of a new order of society; and, nevertheless, only to obey these necessities so long as they did not interfere with those principles of public or domestic order, without which there is no repose, either in a family or a state: in short to give the rising generation the knowledge and habits most calculated to preserve the great ties of society, and to select those who were most worthy of disseminating such knowledge into every part of the kingdom. How vast then must have been that capacity which besides these duties, embraced every branch of science and literature! I dare not dispute that others may have been equally gifted by a beneficent Creator, but I dare affirm, that the one ruling principle of order was the human agency by which M. Cuvier brought his heaven-born faculties into full force.

M. Cuvier greatly occupied himself with municipal and provincial laws, and those relating to public instruction; every branch of which was the object of his exertions. His projects were often too much modified before they were executed, for the Jesuits, as a matter of course, were his formidable enemies. Not contented with issuing ordonnances from the Department of the Interior, he composed a great many Memoirs to accompany them, which exposed their

* A committee belonging to the Council of State, especially appointed to advise with the Minister of the Interior on all administrative questions, to draw up the ordonnances issued from that body, and to prepare the plans of various laws. This committee examines all the disputes which arise between individuals and the administration, authorizes the grants of mines, the construction of bridges and roads, superintends the statutes of different societies, and judges if it be advisable to accept legacies or donations to public establishments, the clergy, &c.

motives, and formed so many precious commentaries, as they explained with the greatest perspicuity the reason of every article. He thought it as useful to spread every where the reason of the laws as to disseminate the laws themselves; thinking that the latter are often attacked and mistaken by the public for want of a proper comprehension of the motives which caused them to be framed.

Under the ministry formed on the 26th of September, 1815, and composed of the Duc de Richelieu, Marbois, Corvetto, Fittre, Vaublanc, Dabouchage, and de Cazes, M. Cuvier was enabled to render an essential service to France, which I cannot do better than describe in a translation of his own notes. "I had then an opportunity of rendering great services to this country, which have never been publicly declared, but which I should be sorry should not one day be known to have emanated from me. R——— supported me in all the meliorations we brought about in the Council concerning the criminal laws, which were prepared in the spirit of the times, but the modifications which rendered those of the Prevotal Courts* almost inoffensive are due to me. In the first place, judicial power was given to them not only over revolts, and attempts openly committed on the public peace, but over conspiracies and attempts plotted in secret; and not only over crimes which might take place after the law was promulgated, but over all which had taken place at any period whatever. It is very evident that in a country like ours, where there are so many men of all classes ever ready to follow the torrent of the day, these two powers would have transformed the Prevotal Courts into so many revolutionary tribunals. Nevertheless, we did not obtain any thing from the united Committees of the Interior, and the law was prepared; but after a meeting of the Council of State, presided by the Duc de Richelieu, I demanded a discussion of these questions in his presence before a new assemblage of the Committees. I believe that I never spoke with so much fire; and, notwithstanding the violence of ——— and ———, thanks to the upright and honest mind of the Duc de Richelieu, I succeeded in getting

* The Prevotal Courts were created by the Bourbons, in order to judge all public disturbances, and from whose decisions there was no appeal. They in some sort assimilated to our special commission.

the articles concerning secret plots entirely erased. There yet remained the visitation of former offences to be overcome. M. de ——— opposed it in the Committee of the Chamber of Deputies, where it was defended by two counsellors of state; I was invited to join them, as I should naturally have been obliged to do in my office of Commissaire du Roi, but I refused, and the law did not pass. The Prevotal Courts have already caused evil enough by the manner of their establishment, but I venture to affirm, that their mischievous effects would have been incalculable if the plan had not been changed on these two points. I am the sole cause with respect to that of the secret plots, but with regard to the punishment of past offences, M. de ——— contributed with me to its being abandoned."

Always guided by the feeling of the good he could effect, and the evil he might avert, under every change of ministry M. Cuvier was to be found, not only defending the institutions which were in danger of being overthrown, but in the Chambers and in the Council, generally successful in preventing those alterations which would have reduced the objects of his unremitting cares to a state of feebleness. Under the ministry of M. ——, a proposal was made to introduce the Jesuits into the University, or, in fact, to deliver it into their hands, and M. Cuvier's firm and spirited resistance alone prevented this measure, which, in all probability, would have caused its destruction. His refusal to form a part of the commission for the censorship of the press, at a moment when, from the despotic nature of the government, this refusal might have been followed by the most grievous consequences to himself, yet more forcibly proves that he was not the man to preserve his places at the price of his reputation. As this occurrence has been much misrepresented, I shall relate all the circumstances which attended it. In M. Cuvier's capacity of Counsellor of State, he had been one of the first most vigorously to oppose the censorship and fearlessly maintained his opinion, both in full Council and in the Chamber of Deputies; using all the energy and reasoning he could command, and leaving nothing undone to put a stop to the measure. Thus far he had only to act in strict accordance with the rank he held in the state, but the interference of another body placed him in a more pain-

ful situation. The Académie Française, of which he was so distinguished a member, determined to interfere in this question; and it became a matter of consideration and dispute, whether a purely learned assembly had any right to join itself to party, and intermeddle with affairs of state. M. Cuvier was of opinion, that it entirely lost sight of its proper character by so doing; that it would thus endanger the harmony of the members among themselves; that it destroyed its opportunities of usefulness by not retaining its independence of politics, and completely overstepped the legal boundary, by presenting a petition from a body, which privilege in France is only accorded to individuals. These motives alone (for he dared not listen to the detestation he felt for the cause of this step on the part of the Academy) induced him to employ all his eloquence to prevent the petition from being presented to the King. He unhesitatingly exposed the inconveniences, the hateful bearings of such a law; but he persisted in it, that the Academy had no right to mingle itself with political questions; and that, if it once suffered itself to assume such a privilege, it would at length dwindle to a mere instrument of party. On this occasion, however, his eloquence and reasoning proved of no avail; the King was petitioned by the Academy, but Charles X. would not even receive the deputation. The rejected dignitaries found favour with the multitude, and, of course, M. Cuvier, and those of his opinion, were accused of pusillanimously preserving their places at the expense of good feeling. The project, however, owing to the resistance of the Chamber of Peers, which then possessed more weight than at present, was for a while abandoned. In the same year it was renewed, and, without even asking his consent, before he was in the least aware that the measure had been decided on, the ministry appointed M. Cuvier one of the censors of the press. On Sunday the 14th of June, 1827, at midnight, arrived an official despatch from the government, written by M. Peyronnet, to announce to him that his appointment to this office would appear the next morning, at nine o'clock, in the Moniteur. To refuse the intended honour; to foresee the probable consequences of such a refusal; to yield to these consequences without hesitation; in short, to prefer conscience to interest, was the

work of an instant; and in ten minutes, a firm, dignified, but moderate refusal, was sent to the Chancery. The ordonnance was at that moment printed, and M. Cuvier's name appeared in the list of the morning, because it had been physically impossible to get it erased; but private means were taken to publish his refusal in every quarter, till all France was in entire possession of the fact. Most of the papers, under fear of the censorship, had been unable to repair the error; and, in fact, when the Journal des Debats ventured to insert M. Cuvier's rejection of the office, the lines which contained it were scratched out by the censors.* This conduct, with the fickle public, regained M. Cuvier's lost popularity, but produced great coolness towards him on the part of the King. I ought not, however, to omit mentioning, to the credit of Charles X., that this coolness ceased after M. Cuvier's dreadful calamity. The first time he appeared at Court after the loss of his daughter, his Majesty addressed him with considerable feeling and kindness, asked him several questions relative to the event, and expressed himself as deeply concerned.

For the last thirteen years of his life did M. Cuvier preside over the Comité de l'Intérieur, and the number of affairs which passed through his hands in this office alone is almost frightful to the imagination: I ought not, perhaps, to say passed through, but that they were examined, deeply considered, and forwarded by him. I should speak much within the limits of the truth, if I were to state them at ten thousand every year. The art of properly distributing the work among his colleagues; his talent in directing discussion; his unfailing and prodigious memory, supplying antecedent decisions at the desired moment; his profound knowledge of the principles which ought to regulate each affair, the best method of applying these principles at the best opportunity;—these qualities all rendered his presidency the most remarkable of the present age, and have indelibly impressed it on the re collection of all who had the advantage of labouring with him. To see him at one of these meetings was, perhaps, to see him in his greatest perfection

* Others refused the office at the same time, but I have only to speak of M. Cuvier.

as a legislator. Rarely eager to give his advice, he even appeared to be thinking of subjects wholly irrelevant to the matter in discussion; but he was often, at that very moment, writing the judgment or regulation which must necessarily follow the deliberation. His turn to speak only came when all others had stated their reasons, when useless words were expended. Then a new light burst upon the whole; facts assumed their proper position, confused and mingled ideas were arranged in order, the inevitable consequences appeared, and when he ceased to speak, the discussion was terminated."*

But these were not all the legislative labours of M. Cuvier. Always holding the office of Chancellor to the University, he had twice been forced, in the temporary vacation of the Grand Mastership, to take upon himself the highest dignity, and, during these two periods, fewer complaints were made against this institution than at any other.† A most gratifying proof of the respect felt for him took place at the moment that a change was made in this appointment. It was the duty of the newly named Grand Master to distribute some prizes awarded by the University; but he was

* These are nearly the words of one of M. Cuvier's brother legislators, the Baron Pasquier, to whose eloquent éloge, delivered in the Chamber of Peers, of which he is president, I am deeply indebted. My sole object is to do justice to M. Cuvier's talents and character; and to accomplish this, I may be excused for employing better language than my own, especially when the writers speak from personal knowledge.

† It should be understood, that, in twice accepting the functions of Grand Master, for the time being, M. Cuvier never received the salary attached to this high dignity, though it increased his household expenses, and though it was richly endowed, even under the restored government. The following are the dates of his holding this office:—M. Royer Collard vacated the presidency of the committee of public instruction on the 13th of September, 1819. M. Cuvier replaced him on the same day; and a letter from the minister of the interior, dated the 17th of the same month, notified the desire of the King, that the committee should continue its labours under the presidency of the counsellor holding the place of chancellor. M. Cuvier was that chancellor, and continued in the rank of Grand Master until the 21st of December, 1820, at which period M. Corbière was appointed to it. M. Corbière resigned on the 31st of July, 1821, and M. Cuvier was again chosen to fill the vacancy until the 1st of June, 1822, when M. Frayssinous was named Grand Master. The day on which M. Frayssinous was called to the ministry, M. Cuvier was appointed Grand Master for Protestant Affairs, which dignity only ceased with his existence; and, let it be remembered, was equally filled by him without pecuniary remuneration.

very far from being popular, and as the public mind was at that moment considerably agitated by political events, it was generally understood that the students intended to raise a violent commotion. Whether he was in reality unprepared with his discourse, or whether he feared the consequences of appearing on this occasion, the recently chosen dignitary requested M. Cuvier to officiate for him. Tottering, as the University was at that time, under the enmity of many powerful men, one act of violence, one instance of excitation and imprudence on the part of its youthful followers, might have caused its downfall; but M. Cuvier met the difficulty with his wonted energy and judgment. Half an hour, taken from the duties of the preceding evening, was devoted to the composition of a discourse, which only required some minutes to deliver. The day arrived, and the students appeared, manifesting every hostile disposition. The sight of M. Cuvier first checked their excited feelings: they remained in respectful silence; the reason and gentleness of his expressions restored complete tranquillity; the distribution took place, and as the benevolent and revered master laid the crowns upon the heads of his disciples, he addressed them as a father would his children; nothing but the murmurs of gratitude and applause were heard, instead of the angry and turbulent conduct threatened, and the University was saved.

Even had Charles X. made the Grand Mastership of the University a permanent office, which intention he more than once expressed, M. Cuvier could not have held it, owing to the insurmountable obstacle presented by his religion; therefore was he made perpetual Grand Master of the Protestant Faculties. This honour was not even opposed by the Catholic bishops, who were thoroughly sensible of M. Cuvier's profound knowledge of ecclesiastical affairs, of his tolerating spirit, which never prompted him to one harsh measure, and he assumed this important charge to the great satisfaction of all France; if, indeed, we except the fanatics of his own creed, who were, perhaps, as much opposed to his enlightened views as the Jesuits, and caused even greater obstacles to the meliorations he endeavoured to establish. He instantly commenced a completely new system of order and encouragement, which, it is true, did not always suc-

ceed according to his hopes; so difficult is it to wean the unenlightened from the prejudice of party, and from long-established ideas. He, however, perseveringly continued his endeavours, undaunted even by the failure of many schemes, provided he could be successful but in one instance. He believed that instruction would lead to civilization, and civilization to morality; and, therefore, that primary instruction should give to the people every means of fully exercising their industry without disgusting them with their condition; that secondary instruction should expand the mind without rendering it false or presumptuous; and that special instruction* should give to France, magistrates, generals, physicians, clergy, and professors, all distinguished for their enlightened views; in fact, that succession of elevated characters which make the real and imperishable glory of the country in which they act their part. But here it may be interesting again to introduce M. Cuvier's own words, as expressing his sentiments, and which have been supplied to me by M. Laurillard:—"Give schools before political rights; make citizens comprehend the duties that the state of society imposes on them; teach them what are political rights before you offer them for their enjoyment. Then all meliorations will be made without causing a shock; then each new idea, thrown upon good ground, will have time to germinate, to grow, and to ripen, without convulsing the social body. Imitate nature, who, in the developement of beings, acts by gradation, and gives time to every member of her most powerful elements. The infant remains nine months in the body of its mother; man's physical perfection only takes place at twenty or thirty, and his moral completion from thirty to forty. Institutions must have ages to produce all their fruits; witness Christianity, the effects of which are not yet accomplished, notwithstanding a thousand years of existence."

* These three terms of primary, secondary, and special, to which I believe we have nothing analogous in England, designate, first, the instruction given to the poorer classes both in town and country, and which, in France, is confined to reading, writing, and the first four rules of arithmetic; secondly, a more extended education, fit for general purposes; and, thirdly, a still more elevated course of study, which fits the pupils for any particular career to which they may direct their views.

With such objects always in view, M. Cuvier attempted and executed several improvements, of which I shall now speak. The buildings of the ancient Collège du Plessis, in which the faculties were placed, being in a state of general dilapidation, he obtained from the government, a grant of the Sorbonne for their use; and as it was highly important that the lectures should not be interrupted during the removal, he exerted all his activity, incessantly visited the architect appointed to direct the works, and reiterated his own inspections, till the object was accomplished. The Faculty of Sciences owe the funds they possess for a cabinet of natural history, and for the purchase of various instruments, entirely to M. Cuvier's efforts. The appointment of medical officers, who understood natural history, to the government vessels, was solely due to his suggestions, as well as that of attaching collecting travellers to the museum of the Jardin des Plantes. The treasures brought home by the Uranie, the Coquille, and other ships, are proof of the excellence of the first plan; for the officers were delighted to employ their leasure in drawing, describing, and preserving the objects they met with in the course of their expedition. The rapid increase of the museum at the Jardin, during the life of M. Cuvier, speaks to plainly for the latter to need further comment. The mode of appointing professors is a complicated question in France: some are partizans for election by vote, some support nomination by established high authority, and others, succession. Each of these methods is attended with inconvenience; and voting, which theoretically may appear to be the best, has not realized the hopes of those who caused it to be adopted. It gives an opportunity for all to enter the lists; and men of consummate skill and experience do not like to find themselves placed in contact with those just issued from the schools; who, with all the fire and confidence of youth, frequently obtain their wishes by their brilliancy, while those of much more real merit are left far behind. The other methods are particularly open to private feelings, or a liability to place men of inferior merit in the professor's chair. To obviate these inconveniences and abuses, M. Cuvier created that method which, in France, is called aggregation. A defeat is of comparatively little consequence to young students;

and therefore, according to this institution, directly they quit the schools, they undergo an election in order to become agregés: these agregés are assistants to sick or aged professors, during their attendance on whom, time and opportunity are given for the developement of their talents, and to make themselves known. At the death of the professor, the faculty to which he belonged presents three candidate agregés to the minister, whose choice determines the appointment.

Long convinced that those destined to different administrative functions should follow a course of study especially adapted to these duties, in the same manner as they do for the learned professions, M. Cuvier proposed to the Simeon ministry to create a new faculty, or particular school of administration, on the models of those which have long existed in Germany, and to which faculty he desired that his name should be attached. The project was prepared, and nearly put in execution, when the above minister retired, and from the succeeding party nothing further could be obtained than a chair for administrative law, and even that was very shortly suppressed.

All the minor schools of France were likewise the objects of M. Cuvier's earnest solicitude; and, notwithstanding the frustration of many of his plans, from an obstinate attachment to old methods, he succeeded, by reiterated appeals to government, in establishing among them professors of history, living languages, and natural history. In order to further primary instruction, he caused the institution of provincial committees for superintending the schools of their own departments, thinking that emulation would thus be excited among those called to the office, consequently their zeal redoubled, and their endeavours carried to a greater extent. In some provinces this plan was attended with the greatest success, but in others party spirit and consequent dissension paralysed even the most active. As a further proof of the ever-watchful cares of M. Cuvier, and the extent to which he carried his anxious endeavours, I now quote a discourse delivered after his death. In this we have not only the words of the superintendent of an important establishment, but his own in evidence of the extreme interest he felt in this primary branch of education. This discourse emanated from M. Reynal, Rector of the Academy

of Bourges, and was delivered at the distribution of prizes in the protestant school of Arnières.

"My dear children,—the faithful followers of our church have spared sufficient from their own wants to build a school for you, and to afford you all that is desirable for your instruction. The academy (of Bourges) has associated itself with them in this work of devotion and self-sacrifice; it has already done much, and will do still more, by appealing in your behalf to the benevolent protection of the university. You see, my dear children, that you have friends and benefactors every where. But, alas! he is no more—he who held the first rank among them! A premature death has snatched him from science, from literature, from your brethren, from us, from all mankind. The whole of the learned world deplores his loss. You are too young, my children, to have heard him spoken of in our village, but the great man who tried to do you so much good, who unceasingly thought of you, was called George Cuvier. Recollect this name, and mention it every day in the prayers that you address to heaven. He has often written to me, 'Do not, Monsieur le Recteur, lose sight of our school at Arnières les Bourges. I recommend the scholars of it to you as my brothers, as my best friends. Instil into them submission to their parents, respect for the property of others, candour and justice. These are the virtues and duties of all religions. Let benevolence and affection reign between them and the children who inhabit the same village, and who, like them, live by their labours in the fields. God loves and protects them all with equal goodness; with the same hand he blesses the sweat of their brow, and their harvests; let them, therefore, behave towards each other like children of the same father.'

"My conscience tells me, that towards you, my children, and all the young people confided to my care, I have fulfilled my duties, and most especially the views of your protector, the great man whom we lament. This place is very humble, my voice is very feeble for the praise of such a life. The eulogium of George Cuvier, of the same religion as yours, will often appear in your books, and will be pronounced by our learned bodies and our most celebrated orators. However, a word sincerely uttered within these walls to the

memory of one so dear to us, of the learned and virtuous man who deigned to honour me with his goodness, has not appeared to me to be out of place, or without interest; and it is as much for your sake as for my own that it becomes me here to speak of George Cuvier, and to lead you in him to preserve the recollection of one of your most ardent benefactors. Let this short eulogium serve you as a lesson, and teach you to be always grateful to those who wish us well, and especially to those who do us good."

During M. Cuvier's direction of the Protestant Faculties he became one of the Vice-Presidents of the Bible Society, and caused the creation of fifty new curés, which had very long been wanting. The protestant churches required fresh regulation and discipline, and for this purpose he collected the opinions of the different pastors of these churches, placing in this matter, as well as in all others, great confidence in the counsels of experience; and had, in consequence, drawn up the plan of a new law, which was to have been laid before that session in which he did not live to take his seat. The feeling with which the ministers of his own religion generally viewed him will be proved by the following extract from the discourse delivered at his funeral by M. Boissard, minister of the protestant church in the Rue des Billettes. "Let us not forget those long abandoned chapels re-opened to our youth in the royal colleges; let us not forget the abundant distribution of religious and moral books under his superintendence. Now that his voice is extinct, let us fervently ask of our God, let us ask in the name of our dearest moral interests, in the name of our eternal welfare, to raise up other voices, which may speak with the same eloquence, the same wisdom, and the same authority. We have lost him who, with inviolable attachment, honoured the creed of our forefathers; whose great name, whose immortal labours, shed so much lustre over our churches; who burdened himself with our ecclesiastical rights in perfect disinterestedness of spirit, and with the purest and most extensive benevolence. What do we not owe to that penetrating glance which revealed to him all that was wanting in our institutions, and under which privations we had so long groaned! How many meliorations took place in a few years; with what wisdom and

charity he examined our requests; and what a new order of things would have arisen at his bidding, had the Almighty suffered him to continue amongst us!"

M. Cuvier's elevation to the Chamber of Peers was but a just tribute to his long and important services; and he took his place among his new colleagues with that calm dignity which was not likely to be ruffled by any accession of rank. It was wholly unsolicited, and, at the moment, produced any thing but joy in himself or his family; for it appeared likely to draw him still more into public life, at a period when all around was stormy and uncertain. It is well known how the Chamber of Peers felt it their duty, for the preservation almost of their existence as a body, to vote in the agitation question of inheritance;* and, of course, M. Cuvier acted according to his maxim of preferring the lesser evil, when evil was unavoidable; but when unshackled by such imperious circumstances, he defended the University, and various questions of finance, in a manner which showed how little he courted popularity. The only work of his hands which remains in the archives of this Chamber relates to corn laws, and was written in a very few hours. But these few hours' reflection, on so arduous and delicate a subject, sufficed him for the production of an exact and extensive statement of the facts which rule these laws in France, of the facts which ought to rule them, of the legislation applied to them during a certain number of years, and, lastly, the considerations which operated in favour of the measures proposed in the Chamber, and which were finally adopted.

A remarkable proof of the comprehensiveness of his legislative talents occurred in this Chamber during his short career there. A question, purely military, was discussed, and so many arguments took place that the affair became confused, and resisted all the efforts made to come to an explanation. M. Cuvier rose, immediately set the whole in a clear, strong point of view, so as to enable the desired arrangements to take place; and this, not in consequence of any deduction made from the reasoning of the moment, but from a thorough knowledge of the matter in all its bearings.

* In case of continued opposition, the Chamber of Deputies threatened to form themselves into a Constituent Assembly.

The loi de cumul (law against accumulation)* would have deprived him, had it been enforced, of one-third of his income; but it was comtemplated by him with the utmost calmness, and, even at the moment when the enforcement appeared to be inevitable, he prepared himself to continue in the performance of all his high functions in the state, without the slightest pecuniary profit. His family cheerfully adopted his views, from the feeling that these duties formed a variety of employment, which was a relaxation to such a mind, and consequently beneficial to his health. The loi de réduction† (law of reduction,) which attacked all places, did take away a considerable part of his revenue; but this excited no other emotion than a regret that it must curtail the exercise of that hospitality for which he had so long been remarkable.

A trifling circumstance happened during the latter part of M. Cuvier's legislative duties, which, as it was erroneously supposed to have been connected with his death, may as well be properly explained here. While defending that incessant object of his anxious cares, the University, before the Chamber of Deputies, in his office of Commissaire du Roi, his voice was much interrupted by a violent cough, on which several of the members came to him, to beg that he would go into the Salle des Conferences, and drink some water: one of the deputies put M. Cuvier's arm within his, and led him so fast, that his foot slipped down a step, and he almost fell to the ground. The hand, however, that had caused the mischief, supported him; but he was immediately surrounded by most of those in the Chamber, who, evincing the deepest interest, obliged him to seek some refreshment in the adjoining room. The strongest proof that no malady had caused this appearance of accident, is, that, ten minutes after, he mounted the

* This law was to prevent any one man from benefiting by the salaries attached to a number of places at one time; and, in fact, was intended to prevent the holding of an accumulation of employments by any one individual.

† The loi de réduction was to lower the salaries of all those who held public functions; and, as M. Cuvier was charged with more than any body else, it, of course, made a great difference in his annual receipts.

tribune for the second time, and, with his usual force and clearness, for more than an hour, once again defeated the enemies of the University. The malady, which in reality laid his mortal frame in the dust gave no warning; and, from the moment it appeared, left no doubt, in his own mind at least, of its destructive result.

PART IV.

In the first part of this volume, I have by a narrative of the principal events of the Baron Cuvier's life, endeavoured to show his progress towards fame and honour, and to expose the circumstances which tended to the perfection of one of Nature's noblest productions. In the second, I have, notwithstanding the difficulties of such a task, and a strong feeling of my own weakness, tried to give an outline of M. Cuvier's principal works, of his most important discoveries, and the immense advantages that science has derived from each. In the third, I have studied to lay before the reader all the good he effected, and all the evil he prevented during his administrative career; and, by so doing, I have set forth all his titles to the grateful admiration of mankind. I am now about to attempt a more particular description of the character, the private virtues, and domestic habits of the great man, whom I have so often admired in the midst of his family, surrounded by friends, and performing the honours of his house to a numerous circle, composed of men of all countries and professions. But before I enter into these details, I feel called on to refute, by a reference to known facts, those accusations which have but too often been brought against him. Men rarely pardon superiority, even when (as in M. Cuvier) it is exempt from all kinds of vanity; still more rarely do they pardon those acquisitions of rank and fortune which necessarily result from this superiority; and the great number of places held by M. Cuvier, caused him to be accused of an ambition for power, by those who reckoned his employments, without reckoning his merits, or without recognizing how useful his talents were to France.

In order to set aside this unjust charge, it will be sufficient, here, to recall some of the occurrences scattered through these pages; and which lead me to affirm, that, so far from having sought or solicited places, he nobly re-

jected several which were offered to him. Twice, at different periods, did he refuse the directorship for life of the Museum of Natural History, and at another, to enter the ministry,—an advancement which at that time no one thought of repulsing; and the greater number of the favours conferred, reached him during his absence, and were wholly unexpected. It was during his journey to Marseilles that the Institute appointed him perpetual secretary; it was while in Holland that he received from Napoleon, an endowment, with the title of Chevalier; he was at Rome when the Moniteur informed him of his having been named Maître des Requêtes; in England, when he was elected to the Académie Française; it was in the midst of studious retirement, when he had, as it were, shut out the world, that the rank of Peer of France crowned his administrative career; and, lastly, on the day of his death, his nomination to the Presidency of the entire Council of State was presented for the signature of his sovereign.* It may, therefore, be safely said, that honours sought him; and now, that his decease has left so great a void in every institution, in every learned and administrative body which could boast of his name on their lists, and most of which were so powerfully served by his labours, I trust that his actions, and the noble disinterestedness of his character will be acknowledged, and that the breath of envy will no longer dare to mingle with the testimonials of admiration which are to be heard on all sides.

There is yet another sort of reproach, which the inventors of systems overthrown by M. Cuvier have dared to bring against him. These, wounded by self-love, or contradicted in some cherished fancy, have not feared to attribute to pride, or even to a feeling of jealousy, very far from his noble heart, the reserve with which he admitted certain explanations of the phenomena of nature, and the resistance he offered to limited or defective theories, the errors and insufficiency of which his penetration and profound knowledge instantly led him to discover. This resistance, how-

* I do not reckon among these honours the election to almost every learned body in the two hemispheres; for of course, all were anxious to pay so just a tribute to M. Cuvier's pre-eminence.

ever, was one of the most beautiful parts of his character, for it proved his love of truth, and the ardour with which he knew how to defend it, even at the expense of his own tranquillity; and he fearlessly exposed himself to personal enmity, in order to turn students away from such views the inevitable result of which was, to stop the progress of science, by giving a false direction to the minds of those engaged in her cause. Speaking of theories in general, he said, a little before his death, "I have sought, I have set up some myself, but I have not made them known, because I have ascertained that they were false, as are all those which have been published up to this day. I affirm still more; for I say, that, in the present state of science, it is impossible to discover any, and that is why I continue to observe, and why I openly proclaim my observations. This alone can lead an author to the discovery of that fact on which he can build a true and general theory.... This fact," added he, "is perhaps of little importance in itself; but, with regard to theory, it will become the principal fact, the key-stone to the arch. Therefore it must be sought, science must march; but we must take care that she does not march in a retrograde direction, as she has sometimes done, and as some naturalists lead her at present. We ought to labour, not with the object of supporting a theory,—because, then, the mind being pre-occupied, will only perceive that which favours its own views,—but with the object of discovering the truth; because the truth will be deduced from true theories, and true philosophical principles; the truth being, in itself alone, the whole of philosophy."*

It seems that both the French and the Germans claim M. Cuvier as their countryman; and it would be difficult to decide whether the place which gave him birth, or that which was the scene of his labours, has the best title to call him her own.† His family, as we see in the

* M. Laurillard.

† The year in which M. Cuvier was born was a remarkable one, for in it Napoleon Buonaparte came into the world, who made as great a revolution in the political face of Europe, as M. Cuvier did in that of science, though not equally lasting. The Duke of Wellington, Mr. Canning, M. de Châteaubriand, Sir Walter Scott, Sir James Mackintosh, alike drew their first breath in this year.

previous pages of these memoirs, was originally Swiss; and, being driven to Montbéliard in consequence of professing the reformed faith, settled there as a remote province of Germany, and where some of the members of it held important charges. His uncle was a minister of the Lutheran religion, and his father an officer in a Swiss regiment then in the service of France. I am led to dwell on these two circumstances, from errors committed by several writers, who have stated M. Cuvier to have entered the church; and also a mistake made by M. Decandolle, a very old and esteemed friend of M. Cuvier, and the learned botonist of Geneva. This gentleman asserts, in his funeral éloge of M. Cuvier, that the latter entered the army, which assertion is wholly without foundation; and it is very probable that both errors have arisen from some confusion between the father, the uncle, and the son.

There is yet another erroneous report, which I am desirous of correcting; and that is, the late developement of M. Cuvier's talents for natural history. So far is the fact contrary to this, that, even while at the preparatory school of Montbéliard, his greatest happiness was to read Buffon, to copy the plates, and to colour them according to their descriptions. When arrived at Stuttgardt, his studies took a higher flight; and he chose that faculty which allowed him to pursue his favourite occupation. As age increased, his boyish pleasure became, as it were, a passion, and he incessantly pored over all the books he could find on this subject. He dissected the only things within his reach, such as insects and plants; he made an excellent collection of the latter, and discovered several species, in the neighbourhood of Stuttgardt, which were not previously known to exist there. He kept a number of living insects in his room, constantly feeding them, and watching their habits. It was there that he made many of the drawings spoken of in Part II., and which form several thick volumes. I have two of these, which show that the hand of the master guided him even at this early age. Knowing the great interest he felt in such productions, in one of my visits to Paris, I took a collection of original drawings for his inspection. Every evening during my stay there, he asked for my book, and one morning entered the breakfast-room with a huge quarto

in his hands, and, putting it before me, said, "Permit me to enter the company of your friends: choose any two of these pages, and I will cut them out for you. I amused myself with drawing these figures when I was a student at Stuttgardt; and if I were to draw them now, I could not make them with greater accuracy." This same facility for designing continued throughout life; and it is scarcely possible to do justice by words to his anatomical drawings, in which he had a manner peculiar to himself of expressing the cellular tissue. His delineations of quadrupeds were equally extraordinary; and, when lecturing he would turn to the black board behind him, with the chalk in his hand, and, speaking all the time, he would rapidly sketch the subject of his discourse, sometimes beginning even at the tail, proportioning every part with admirable precision, and preserving the character to such a degree, that even the species could be immediately pronounced. The taste for drawings of natural history extended to all branches of the art, and it was his delight to visit every collection or exhibition of the kind. During his last visit to England he went to Hampton Court, and it was with difficulty he could tear himself away from the cartoons of Raffaelle, in order to keep a dinner appointment. The admiration he felt for this most wonderful of all painters amounted to a species of worship; and no one, whether an artist or not, ever comprehended or delighted in the beauties of Raffaelle more than did M. Cuvier. His long stay in Italy had refined and confirmed his judgment; and when he was accused of want of proper curiosity for not extending his route as far as Naples, during either of his journeys to Rome, he deemed it sufficient to reply, "At Naples I should not have found the Vatican!" He was very sensible to the merits of our great Lawrence, to whom he was personally attached, and who had constantly sent him the engravings from his works; and also to the conception and genius of our Martin, whose engravings had always excited his attention in Paris, and whose gallery he visited when last in London. Woe, however, to the artist who committed a fault in anatomy or perspective; his quick eye immediately fastened on it, even in the midst of the praises excited by colouring or expression. To view the exhibitions of the works of our celebrated portrait pain-

ter, which took place after his death, was one of the objects of M. Cuvier's second journey to this country; and he frequently passed hours in the British Gallery, where they had at that time been collected. He had personally known many of those represented by this life-giving painter; he felt, as he contemplated them, as if he were again in their presence, and related a thousand anecdotes, which he was delighted to recall.

There was yet another talent of M. Cuvier's, which manifested itself in his earliest youth, and which, though trifling in extent, was a further proof of his facility for retaining a recollection of form. It was the power of cutting out, in pasteboard or paper, whatever object had excited his attention; and a remarkable proof, not only of his dexterity, but of his quick perception, occurred when he was about six years of age. A mountebank passed through the village, who played various slight-of-hand tricks, and was called in by M. Cuvier's uncle to amuse the children assembled at his house. A "fontaine de Héron,"* which ran and stopped at his bidding, a poniard which he apparently plunged into his arm and drew out again, dripping with blood, amused and astonished the spectators of all ages who happened to be present: but George Cuvier examined every thing with deep attention, and evinced little or no surprise; for he explained the manner in which the fountain played, and the mechanism of the poniard, accompanying his explanations by cutting the whole out in paper.

But I must beg my readers once more to go back to Stuttgardt, where M. Cuvier obtained honours which were conferred only on the chosen few, and those few much older than himself. His first examination at that university had something remarkable in it, considering that he was then but fourteen. The committee deputed to assign him his place, reported of him as follows:—

"The young Cuvier has shown, 1st, just notions of Christianity, well adapted to his years. 2dly, A good knowledge of general history and geography. 3dly, Solid notions of logic, arithmetic, and geometry. 4thly, Consider-

* So called by the French, because it was invented by Hero, of Alexandria, who lived 120 years before Christ. Its English name, I believe, is "a fountain of circulation."

able skill in making Latin themes and verses, and in reading the New Testament in Greek." At the moment of entering the academy, he was ignorant of German; but, as we have already seen, in less than a year, he secured the prize for that tongue. He always retained the faculty of speaking this language, to which he added Italian, in both of which he conversed fluently. He read several others, and, among them, English; his inability to speak which, I have often heard him regret. He was accused of knowing more of it than he chose to own; but there could be no motive for concealing what would have afforded him pleasure to make use of; besides which, he has often tried to put little sentences together in jest, and ask if they were right. If a reply was given in the affirmative, he would threaten to begin in earnest one day, and probably would have performed his intention, had not his daughters always acted as able interpreters in this respect. His knowledge of the dead languages was not only a source of exquisite enjoyment to him, but was absolutely necessary to his profound researches. He seldom alluded to Greek or Latin authors in conversation, but there was a classical precision and elegance of expression, even in his ordinary discourse, which can scarcely be acquired by other means than the study of such writers. The minor accomplishments which he added to these mental stores are almost surprising, because each must have taken time to acquire. Among them was a thorough knowledge of heraldry, which it is well known, contains a large portion of detail.

There cannot be a stronger proof of the precocious perfection of M. Cuvier's universal talents than the occurrences of that part of his life which was spent in Normandy. One or two of these (in addition to those already mentioned) I have extracted from the eloquent éloge delivered by Dr. Pariset at the late meeting of the Institute.* "A citizen of Caën, who was a great amateur of natural history, possessed a magnificent collection of the fishes of the Mediterrannean: the instant M. Cuvier heard of it, he flew to in-

* Dr. Pariset is one of the physicians to the Hospital of la Salpêtrière, and, as Member of the Academy of Medicine, composed and read the above éloge which was heard with the most reverential attention, and followed by enthusiastic applause.

spect the treasures, and, after several visits, he, by means of his pencil, that precious instrument of observation and memory, became in his turn the possessor of the collection; for, in natural history, the faithful representation of an object is the object itself. Nearly six years passed in this manner, terribly, indeed, to France and Europe, but calmly and profitably to M. Cuvier. Nevertheless, the Revolution insinuated its jealousies and suspicions even as far as his abode; and, the impulse having been given from the capital, one of those societies, or unions, was about to be formed at Fécamp, which armed the people against themselves, and were attended with the most injurious consequences. M. Cuvier saw the danger, and represented to the owner of Fiquainville, and the neighbouring landholders, that it was to their interest to constitute the society themselves. This wise counsel was adopted; the society was formed; M. Cuvier was appointed secretary; and, instead of discussing sanguinary politics at its meetings, it devoted itself solely 'to agriculture.' I have already related how M. Tessier happened to have taken refuge in the neighbourhood, and how he was detected and accosted by M. Cuvier; I have now to add, from M. Pariset's éloge, that, after this greeting, they became the greatest friends; 'and that the perfect confidence which existed between them, in a measure, rendered them necessary to each other.' M. Tessier daily discovered in his young friend new talents and perfections, and was astonished at the sight of his numerous productions. On the 11th of February he wrote as follows to M. de Jussieu:—'At the sight of this young man, I felt the same delight as the philosopher who, when cast upon an unknown shore, there saw tracings of geometrical figures. M. Cuvier is a violet which has hidden itself under the grass; he has great acquirements, he makes plates for your work, and I have urged him to give us lectures this year on botany. He has promised to do so, and I congratulate my pupils at the Hospital on his compliance. I question if you could find a better comparative anatomist and he is a pearl worth your picking up. I assisted in drawing M. Délambre from his retreat, and I beg you to help me in taking M. Cuvier from his, for he is made for science and the world.' Such were the words of M. Tessier; and I may be pardoned for intro-

ducing them here, as they do more honour to our own species than the history of great battles and conquests."

M. Cuvier's grave and frequently absent air has been repeatedly mistaken for an excess of reserve and coldness, and thus it was often impossible for a mere casual observer to form a correct judgment of the high degree of benevolence which he evinced to all who required his assistance, the indulgence with which he viewed the follies of youth, and, in fact, the errors of all mankind. I may go still farther, and say the mirth which, before the death of his daughter, was to be traced in the laugh which seemed to proceed from the very heart. No one enjoyed a ludicrous circumstance more than he did; no one was happier at the performance of a comedy; for, when I was living in Paris, a ridiculous afterpiece was frequently represented on the stage, called "Le Voyage à Dieppe," in which the professors of the Jardin des Plantes were brought forward in the most amusing way possible; and such was M. Cuvier's uncontrollable risibility at its performance one evening, that the people in the pit several times called out to him to be quiet.

The nerves of M. Cuvier were particularly irritable by nature, and frequently betrayed him into expressions of impatience, for which no one could be more sorry than himself, the causes of which were immediately forgotten; and the caresses and kindnesses which were afterwards bestowed, seldom seemed to him to speak sufficiently the strength of his feelings at his own imperfection. Any thing wrong at table, to be kept waiting, a trifling act of disobedience, roused him into demonstrations of anger which were occasionally more violent than necessary, but which it would have been impossible to trace to any selfish feeling; even the loss of his own time was the loss of that which was the property of others; and, where his mere personal inconvenience was concerned, he was seldom known to give way to these impetuous expressions. It was almost amusing to see the perfect coolness with which the servants, more especially about his person, occasionally obeyed his orders, or replied to his injunctions without exciting a hasty word from him. His impatience, however, was not confined to little annoyances; but if he expected any thing, or any body, he scarcely rested till the arrival took place. If he had workmen em-

ployed for him, the alteration was done in his imagination as soon as commanded; and thus in advance himself, he unceasingly inspected their labours, and hastened them in their tasks. He would walk along the scene of operation, exclaiming every instant, "Dépêchez vous, donc," (make haste, then,) and impeding all celerity by the rapidity of his orders. Perhaps, at the moment of pasting the paper on the walls, he brought in a pile of engravings to be put on afterwards, and which, in fact, were often nailed up before the paste was dry. But although he was perfectly happy while thus engaged, he could not be alone, and, fetching his daughter-in-law back as often as she escaped from him, he associated her in all his contrivances. On unpacking a portrait of this ever ready companion by Sir Thomas Lawrence, and sent over from England, he happened to be present; and, in order to prevent him from seeing it by degrees, and so destroying the effect, she was obliged to hold her hands over his eyes, or he could not have resisted the desire to look. When he sent a commission to this country, every succeeding letter brought an inquiry as to its execution, or a recommendarion to use zealous despatch. I must add, that the thanks were as often repeated as the injunctions. It is, perhaps, a curious inconsistency, that a man who submitted to such tedious and minute labour as he had all his life undergone, should be thus impatient when the activity of others was in question; but it must be recollected, that he found very few who would work as he did; and that, while so working, his mind was absorbed by every step which was taken to ensure the wished-for result, and had no time to bound over the space between thought and execution. "M. Cuvier possessed in the highest degree, that patience which has been said to be always necessary for the discovery of some important truth, and which, according to Buffon, and according to M. Cuvier himself, constitutes the genius of a well-ordered mind. No labour, however minute, irritated him, when he believed it to be requisite for the attainment of his object; and this patience was really a virtue in that man, whose blood would boil at a false reasoning, or a sophism,—who could not listen to a few pages of a book that taught nothing, or a work that bore the marks of prejudice or passion, without feeling the greatest

irritation; and so far did he carry his patient investigation, that he even examined the least details of those elementary books which were to further instruction, and directed the construction of several of the geographical maps of M. Selves, himself colouring the models." *

In person M. Cuvier was moderately tall, and in youth slight; but the sedentary nature of his life had induced corpulence in his later years, and his extreme near-sightedness brought on a slight stoop in the shoulders. His hair had been light in colour, and to the last flowed in the most picturesque curls, over one of the finest heads that ever was seen. The immense portion of brain in that head was remarked by Messrs. Gall and Spurzheim, as beyond all that they had ever beheld; an opinion which was confirmed after death. His features were remarkably regular and handsome, the nose aquiline, the mouth full of benevolence, the forehead most ample; but it is impossible for any description to do justice to his eyes. They at once combined intellect, vivacity, archness, and sweetness; and long before we lost him, I used to watch their elevated expression with a sort of fearfulness, for it did not belong to this world. There are many portraits published of M. Cuvier, formed of various materials; but, with the exception of the medallion of M. Bovy, the copper medal, the plaster bust, the lithographic print by M. le Meunier, and the oil painting by Mr. Pickersgill, they scarcely convey any just idea of M. Cuvier's expression: in fact, some of the prints are positive caricatures. The bronze bust, modelled, and so handsomely presented to the Royal Society of London, by the celebrated sculptor, M. David, was made from a cast taken after death. All praise must be given to this bust as a work of art; but it is very evident that M. David's feelings, as an artist, were most susceptible to the classic beauties of M. Cuvier's head and features (which, in fact, were remarkable,) and, by dwelling with too much stress on these, he has lost sight of the benignity of the countenance.† The bronze

* Laurillard.

† Since writing the above, I have seen the bust worked in French marble, after the same model, and given to Madame Cuvier by this generous and public-spirited artist. It is an improvement on that cast in bronze, and now stands on a pedestal in the room, and on the very spot where the

bas-relief, taken from the bust, of course possesses the same faults. Mr. Pickersgill's portrait is decidedly the most perfect of all: it is there possible to form a correct notion of the sharply-defined features; the eyes that so well spoke the serious and great thoughts within, that rose above this world; the mouth, and the carriage of the head. To use Mr. Pickersgill's own words, he tried "to catch the essence of the man," and his skill has proved adequate to the great task before him.*

That love of order which so prevailed in great things, was, by M. Cuvier carried even into the minutiæ of life. His dissecting dress, it is true, was not of brilliant appearance, but it was adapted to the occasion; in this he would frequently walk about early in the summer mornings, in the open air, or pace up and down the galleries of anatomy, but on all other occasions his toilette was adjusted with care; he himself designed the patterns for the embroidery of his Court and Institute coats, invented all the costumes of the University, and drew the model for the uniform of the council, which drawing accompanied the decree by which it was established. I was very anxious to see him in his University robes, and having mentioned my wish, he came into the

mortal remains of the great original were laid till they were removed for ever.

* I cannot quit this subject entirely, without placing Mr. Pickersgill in a still more admirable light than in his profession of artist. Feeling the value of the above-mentioned portrait, after she had lost her noble husband, Madame Cuvier was naturally desirous of possessing a copy of it, from the hands which had so well known how to execute the first. I was requested to negociate concerning the possibility of sacrifice of time, price, &c.; and the result was, that Mr. Pickersgill himself made the wished-for copy, which was not inferior to the previous likeness, and presented it to the Baroness, saying, that his services could be no affair of money between him and the widow of the great Cuvier. The sad delight with which the survivors accepted this generous gift was the highest reward which the donor could receive, and is best pourtrayed by their own expressions to me; "C'est lui; c'est sa pensée, noble, pure, élevée, et souvent mélancolique, quoique toujours bienveillante et calme, comme la vraie bonté. C'est son âme dans ses yeux. C'est le grand homme passant sur la terre, et sachant qu'il y a quelque chose au-delà." ("It is he; it is his noble, pure, elevated mind, often melancholy, though always benevolent and calm, like real goodness. It is his soul in his eyes. It is the great man passing over this earth, and knowing there is something beyond.") I may be forgiven for relating these anecdotes of the private feelings of the living, when it is considered how refreshing and useful it is to meet with such actions in this world of self-interest.

room where I was sitting, when decked in all the paraphernalia for a grand meeting. The long, flowing gown of rich, violet-coloured velvet, bordered with ermine, added to his height, and concealed the corpulence of his figure; the cap, of the same materials, could not confine his curls; and, brilliant with his ribands and his orders, the outward appearance fully accorded with the internal man. His refined taste was often manifested in the buildings of the Jardin, made according to his direction, and was extended to the minutest details. The menagerie for the wild beasts is classically beautiful, and was built entirely after his designs and under his inspection, while he held the annual office of director. The new wing of the Museum, which joins the Corps de Garde, was also added by his orders during one of these directorships.

The manners of M. Cuvier, by their dignity, resembled the ancient deportment of French people, divested of its extreme ceremony; for, accustomed to mingle with the highest of all classes and countries, and naturally desirous of paying a just tribute of respect and good-will to every body, he was likely to be generally polished and courteous, though in company, at the houses of others, sometimes stately. That stateliness was often deemed stiffness; and it must not be denied that real stiffness was assumed on some rare but necessary occasions. Frequently, however, I believe that it arose from timidity; for it wore off the instant he saw any one inclined to lay aside the restraint which his presence very often, and most needlessly, imposed. On the contrary, when he saw people afraid of him, he fancied he must have caused it by something on his side; and thus a counter-reserve was produced, that seldom ceased with either party. To the young, however, he was universally encouraging, and they could not more entirely win his heart than by talking, in his presence in their naturally open manner. Towards females he was particularly kind and attentive, distinguishing all whom he thought worthy of more than the general respect he paid to the sex, even appealing to them on various occasions, delighting in their sensible remarks, and listening to their anecdotes with the greatest interest. His attentions to his guests, either when visitors for a few hours or a few weeks, were surprisingly thoughtful;

if he could, he would have prevented their wishes, inquiring if they had all they required in their own rooms, summoning them to the drawing-room, if, by chance, any one arrived whom he thought they would like to see, expressly inviting those to his house who had excited either their curiosity or interest, and devising every thing he could think of for their enjoyment or entertainment. At the time when Paris was half mad about the Greeks, he suddenly re-appeared, after he had taken leave of us, with a beautiful Greek boy, the son of Colocotroni, whom he had accidentally met as he quitted the Jardin; but, fancying that we should like to be acquainted with this intelligent, animated child, he took the trouble of coming back on purpose to present him to us. He frequently walked, or rode home in a cabriolet, in order to lend his carriage to the ladies of his house; if a wish was expressed to see a scarce book that his own immense library did not contain, he would bring it home from the Institute for inspection; and, while carrying on the most important duties of the savant and the legislator, he yet found time to think of others and their trifling desires. Now and then, when the summer lessened some of his heavy public duties, he would take a walk with us; and no schoolboy, with permission to go out of bounds, could set off with more delight than we all did. Sometimes he would confine himself to the Jardin; and in one of these more limited excursions he was attracted by the brilliant appearance of the Coreopsis tinctoria, which was then new in France, and which he saw for the first time during this ramble. He in vain inquired the name of us, and we continued our walk. On returning to the house, he quitted us at the door, and, in about half an hour, he re-appeared, and, stopping, for an instant, as he descended to his carriage, he said, "Ladies, I have been to M. Deleuze (a learned botanist of the Jardin,) and ascertained the name of the flower:" he then gave it us, genus, species, country, and the reason for its appellation, and, making his bow, retired, perfectly happy at the knowledge he had acquired and imparted. As in this trifling circumstance, so was it in all things; he never hesitated saying when he did not know; he never rested till he did know, if the means of acquiring the information were within his reach; and, once known,

he was most willing to impart it to those who wished to learn. The facility with which he placed knowledge in the reach of others was one of the most precious gifts with which Heaven had endowed him; for half the value of a brilliant or a useful idea is lost, unless we have the power of communicating it as it appears to ourselves. Sometimes he would enliven the evening by proposing a party to eat ices at one of the famous cafés; and, on one occasion, he insisted on showing me, as an Englishwoman, how happy the lower classes of French are on their fête days; and, passing the barrier close to the Jardin des Plantes, he led us among the guinguettes* outside, where the people were dancing and singing, and making merry. He delighted in their mirth, stopped to witness it, and, several times turning round to me, asked me if the English knew any thing of such light-hearted enjoyment. It is said of some celebrated person, that no one could take shelter from the rain with him, under a shed, for a quarter of an hour, without deriving some information from his discourse. This observation may be equally applied to M. Cuvier; for after these little excursions, intended solely for diversion, it was frequently a matter of surprise to find that something had been learned, either by way of history, character, language, or moral conduct; so elevated, yet so fascinating, was the tone of his unrestrained conversation.

M. Cuvier's hours of audience generally took place before and after breakfast, and he was accessible to every body; for he said, "when people lived at such a distance as the Jardin des Plantes, they had no right to send any one away who came so far to request their advice or assistance." I have seen the young and the old, the widow and the orphan, the poor and the rich, throng his door, all in the security of being well received. I met an unhappy woman one morning, crying as she came down stairs; and on asking her what was the matter, she replied, "It is not M. Cuvier who has made me cry; but it is because even he

* Many of these guinguettes consist of nothing but a mere shed, with a little space in front, where the guests sit and drink weak wine, (vin ordinaire,) sugar and water, lemonade, &c., dance, sing, and play at dominoes. They are generally placed outside the barriers to avoid the duty paid on provisions of every kind as they enter Paris.

cannot help me that I am in such trouble;" evidently thinking that, if he could not serve her, she had no hope. The meal-times were always anticipated by his family and friends with the greatest pleasure; for then it was that questions were asked, and histories related on all sides. As if knowing the few opportunities there were of conversing with him, he suffered himself to be constantly interrupted, and never hesitated giving the desired information concerning public or private circumstances; and frequently, when the former were not immediately comprehended, he would set forth the subject in all its bearings, till it was perfectly understood. The breakfast took place generally at ten; but M. Cuvier had almost always risen at seven or even before that time, had prepared his papers for the day, had arranged the occupations of his assistants, and had received most of his visitors. Some intimate friends frequently called on him at this hour, because they were sure to find him at home. His usual practice was to read the newspapers as he ate his breakfast, or look over the books for the use of the primary schools, sent for his inspection. Still, if one of the family were missing, he would inquire for the absent person with the utmost solicitude; and even if the conversation were unusually animated, he insisted upon knowing the whole, though he seldom raised his eyes from the paper. After breakfast was finished, he dressed, and then came the routine of his numerous occupations; and when it was his turn to be Director of the Jardin, before going to the Council, &c., he would take his way, amid the trees, to the Museum of Natural History, followed by secretaries, aide-naturalists, students, &c., bearing the treasures which had just been finished in the stuffing laboratories, and which were arranged in their respective cases under his superintendence. His carriage was generally punctual to the moment appointed, and no one was allowed to keep him waiting; and, in fact, no one would do so, if possible to avoid it, for it vexed him exceedingly; though I used to think sometimes that I saw a faint smile on his countenance, when we flew down stairs, our gloves in our hands, and our shawls streaming after us. The instant he had given his orders, he would thrust himself into a corner, and resume his reading or writing, suf-

fering us to talk as much as we pleased. Many of his most brilliant memoirs were finished as he thus rode through the streets of Paris; and he had a lamp fixed to the back of his carriage, that he might read on his return home at night from his visits; but he found it so distressing to his eyes, that he could not long make use of it. All others, however, were delighted at the disappointment, because he was by it cheated into a few more moments of repose.

Privileged as Mr. Bowdich and myself were to inspect the vast treasures in his collections, and in his library, at our leisure, we yet found it much more agreeable to take the books home with us; frequently we required the very volume to which he had been referring before his departure, and which was generally left open upon his table, to be again used on his return; for he had the happy faculty of resuming his subject at any moment, in any place, and at any part, even in the middle of a sentence. Waiting, then, till his carriage was driven from the door, bearing him away for several hours to his administrative duties, we went up to his room, took possession of the book, and inquiring the hour of his return, fled back with it five minutes before it was wanted. To be sure, in consequence of our having been a little too late on one or two occasions,—a circumstance which he bore with surprising good humour,—we used occasionally to see some of his household arrive at our hotel, in breathless haste, to inquire for a volume which had long been missing. Generally speaking, we were innocent of the misdemeanour; but such was his indulgent goodness to us, that he not only facilitated every desire, every endeavour to obtain improvement, but even allowed us to publish, for the first time, some of his own drawings of Mollusca. He had no idea of exclusion towards any one who he thought would make a proper use of the materials he could furnish; so that we had only to ask, and orders were given to the keepers of the galleries to take out of the cases any object which was needed for our closer examination.*

* Though perhaps somewhat foreign to my subject, I cannot forbear making use of the first opportunity afforded me of expressing my gratitude to many connected with this vast and magnificent establishment: M. Desfontaines, M. de Jussieu, M. Brongniart, M. Geoffroy St. Hilaire

Before dinner, M. Cuvier would occasionally give a few minutes to his family, by joining the assembled party in Mme. Cuvier's room. On the sound, "Madame est servie," he would offer his arm to his wife, and leading her to her seat, all gathered round them both at this once happy table. M. Frederic Cuvier, his son, and very often one or two intimate friends who came by chance, would increase the circle, and the most delightful conversation would ensue. On proceeding to the drawing-room, M. Cuvier would occasionally gratify those present by an hour's stay among them before he retired to his occupations, or paid his visits. Occasionally he would bring forth some old book he had picked up at a stall on one of the Quais, and boasting of his bargain, read some passages; or, bidding some one read to him, he compared different editions. At a more recent period, if he had any of M. Champollion's letters from Egypt, he would station us at different tables, with volumes of the great work on Egypt, and verify the descriptions of the antiquary step by step. He never was weary of research; though, it must be owned, we occasionally wished for the sound of the carriage-wheels, to interrupt our employment. He never suffered people to be idle in his house; and no sooner did friends station themselves among the family for a time, but he would come into their rooms with folios and paper in his hand, and set them to trace plates for him; and seldom forgot, on his return home from his duties abroad, to inquire how much had been done. To be sure, it was a pleasure to work for him, he was so grateful for the service, and so happy when the task was properly completed. His thirst for knowledge took an unbounded range, and the

M. Frederic Cuvier, M. Chevreuil, M. Valenciennes, M. Deleuze, and M. Laurillard, thank God! still live to receive this public testimony of my sense of their kindness. M. Haüy, M. Latreille, M. Thouin, M. Royer, M. Dufresne, W. Vanspaendonck, M. Lucas, have been called to another world, where human feelings are of no avail. Our pass-word for every thing was, "de la Maison Cuvier;" and night and day we wandered about this little world as if we had been among its permanent inhabitants. Great have been the changes since then; and now the master spirit of this beautiful abode is no more, I shall never look on it again, and fancy that it has retained its perfection. During my late visit, not even the subordinate employés whom I had known in former times, but, after their respectful greeting, lamented the death of their great patron, in words that betokened the sincerest grief.

inventions and enterprises of other countries were as interesting to him as those of his own. Every letter to me, at the time that the accidents happened to the tunnel under the Thames, contained inquiries concerning it: the steam carriages, rail-roads, suspension-bridges, and public institutions, were all subjects of correspondence: he read, or made others read to him, all the attempts that had previously taken place to perfect the same undertaking; and when a person from the country in which the scheme was going forward came to see him, he was prepared to converse with the stranger as one deeply learned in the matter. He was one day talking to a gentleman high in office at one of our national establishments; and after mentioning the expenses of the Museum, &c. at the Jardin des Plantes, he to the great surprise of his companion, stated to a fraction the former, and actual costs of the British Museum. He could not bear to be inactive for an instant; and once, while sitting for a portrait, which was to face the quarto edition of his "Discours sur les Revolutions du Globe," Mlle. Duvaucel read to him the "Fortunes of Nigel." He had a map of London at his elbow, which the artist allowed him occasionally to consult; and the Latin of King James often excited a smile, which was a desirable expression for the painter; but unhappily the engraver was not a faithful copyist, and this published portrait is anything but a resemblance.

A change of occupation was a relaxation to M. Cuvier perhaps the greatest of all was conversation; but there was yet a third, which was to throw himself on a sofa, hide his eyes from the light, and listen to the readings of his wife and daughters, and, occasionally, that of M. Laurillard. By these nightly readings, for they only took place when he could not work any longer, he became acquainted with the literature of the whole civilized world; and no one was better able to appreciate it, for he looked on it as a picture of the human mind, and judged by it of the state of civilization in the country where the various works were published. He frequently thus renewed his acquaintance with books read long before, in order to mark the changes which had taken place in the lapse of years; and the number of volumes perused in this way was immense,

contrary feeling led him merely to avoid intercourse, and did not, in any manner, extend towards the real welfare of the individual. Even the annoyances and disappointments he met with in his public career left not one grain of bitterness in his soul; and he generally laid the fault to the ignorance, rather than the bad feeling, of the offenders; saying of them,—"They are more to be pitied than blamed, for they know not what they do." No one knew better how to soften a refusal; and, whatever might be his reasons, he took care that his opinion should not wound the feelings of any applicant for his favours. During one of my visits to his house, a gentleman, anxious to obtain the vote of M. Cuvier, as serviceable in procuring a public employment, applied to me to intercede with my noble host. I felt that I had no right to do so, and mentioned my dilemma to Madame Cuvier, at the same time expressing my vexation, that such advantage should have been taken of my intimacy. This being repeated to M. Cuvier, he laughed at the scruples which had withheld me from conversing with himself on the subject, and then desired me to reply to the applicant, that he never suffered the ladies of his family to interfere in such matters. When I left the room in order to do this, he called me back, as if a sudden thought had struck him; and he added,—"Tell your friend, if he wishes to see me, or ask my advice, I shall be happy to receive him at ———;" evidently wishing to save me from the pain of an abrupt refusal to one whom I might esteem.

The soirées of Baron Cuvier, which took place every Saturday evening, and were sometimes preceded by a party, were the most brilliant and the most interesting in Paris. There, passed in review, the learned, the talented, of every nation, of every age, and of each sex; all systems, all opinions, were received; the more numerous the circle, the more delighted was the master of the house to mingle in it, encouraging, amusing, welcoming every body, paying the utmost respect to those really worthy of distinction, drawing forth the young and bashful, and striving to make all appreciated according to their deserts. Nothing was banished from this circle but envy, jealousy, and scandal; and this saloon might be compared to all Europe; and not till the guest had repassed the Rue de Tournon, or "the

Seine, could he again fancy himself in the capricious capital of fashion, or time-serving show." It was at once to see intellect in all its splendour; and the stranger was astonished to find himself conversing, without restraint, without ceremony, with, or in presence of, the leading stars of Europe: princes, peers, diplomatists, savants, and the great host himself, now receiving these, and now the young students from the fifth pair of stairs in a neighbouring hotel, with equal urbanity. No matter to him in which way they had directed their talents, what was their fortune, what was their family; and wholly free from national jealousy, he alike respected all that were worthy of admiration. He asked questions from a desire to gain information, as if he too were a student; he was delighted when he found a Scotchman who spoke Celtic; he questioned all concerning their national institutions and customs; he conversed with an English lawyer as if he had learned the profession in England; he knew the progress of public education in every quarter of the globe; he asked the traveller an infinity of things, well knowing to what part of the world he had directed his steps; and seeming to think that every one was born to afford instruction in some way or other, he elicited information from the humblest individual, who was frequently astonished at his interest in what appeared so familiar to himself. One thing used particularly to annoy him; which was, to find an Englishman who could not speak French. It gave him a restraint of which many have complained, but which, on these occasions, solely arose from a feeling of awkwardness on his own part at not being able to converse with his foreign guest. No one ever rendered greater justice to the merit of his predecessors or contemporaries than M. Cuvier. "Half a century," he said "had sufficed for a complete metamorphosis in science; and it is very probable that, in a similar space of time, we also shall have become ancient to a future generation. These motives ought never to suffer us to forget the respectful gratitude we owe to those who have preceded us, or to repulse, without examination, the ideas of youth; which, if just, will prevail, whatever obstacles the present age may throw in their way." This was a delightful manner of satisfying every body with himself: the naturalist, from a remote

province, or perhaps from a colony at the other end of the world, was no longer ashamed to think that he had not kept pace with the march of science in the capital, and had been poring over obsolete systems; and the young student; fresh from the Universities, was not afraid to utter the objections, the fallacies, or the inaccuracies, he fancied he had detected in his perusal of more recent authors.

The repast which closed these evening entertainments was served in the dining-room, and, certainly, at the most delightful tea-table in the world. A select few only would stay, though M. Cuvier sometimes pressed into the service more than could be well accommodated; and while the tea, the fruit, and refreshments of various kinds were passing round, the conversation passed brilliantly with them. Descriptions of rarities were given, travellers' wonders related, works of art criticized, and anecdotes told; when, reserving himself till the last, M. Cuvier would narrate something which crowned the whole; and all around were either struck with the complete change given to the train of thought, or were forced to join in a general shout of laughter. One evening, the various signs placed over the shop doors in Paris were discussed; their origin, their uses, were described; and then came the things themselves. Of course, the most absurd were chosen; and, last of all, M. Cuvier said that he knew of a bootmaker who had caused a large and ferocious looking lion to be painted, in the act of tearing a boot to pieces with his teeth. This was put over his door, with the motto, "On peut me déchirer, mais jamais me découdre."* I was in Paris when the celebrated picture, painted by Girodet, of Pygmalion and the Statue, was exhibiting at the Louvre. It caused a general sensation; epigrams, impromptus, were made upon it without end; wreaths of flowers, and crowns of bays, were hung upon it; so that it became a universal theme of conversation. Among other topics, it was one evening introduced at M. Cuvier's; when M. Brongniart (the celebrated mineralogist, and director of the Royal Manufactory of China at Sévres,) found fault with the flesh, which, he said, was too transparent; Baron de Humboldt (the learned Prussian traveller,

* "I may be torn, but never unsewn."

who had lately been occupying himself with the chemical experiments of M. Gay-Lussac) objected to the general tone of the picture, which, he said, looked as if lighted up with modern gas; M. de Prony (one of the mathematical professors of the Ecole Polytechnique, and also director of the Ecole des Ponts et Chaussées*) found fault with the plinth of the statue; and many gave their opinion in the like manner, each pointing out the faults that had struck him in this celebrated performance; after which, M. Cuvier said that the thumb of Pygmalion was not properly drawn, and would require an additional joint to those given by nature, for it to appear in the position selected by the painter. Upon this, M. Biot (the mathematician and natural philosopher, who had remained silent all the time,) with mock solemnity summed up the whole, showing that every body had been more or less influenced by his peculiar vocation, or favourite pursuit; and concluded by saying, that he had no doubt but that every one of them, if they met Girodet the next day, would congratulate him on the perfect picture he had produced. On these evenings, one or two old, or particularly cherished friends would remain, talking after the rest had taken their departure: the hours passed, the clock would strike two before the little coterie thought of separating; and even then M. Cuvier would say, "Nay, gentlemen, do not be in such a hurry, it is quite early."

But I am now speaking of that period which preceded the death of the angel Clementine, so named after the dear and excellent mother, who had so well guided the earliest youth of her father. This pure creature was so good herself, that she never suspected evil in others, and was the light of every body's existence in this hallowed circle. Her likeness to M. Cuvier was very striking; and though her eyes and hair were of a darker and different shade, his every feature could be traced in her countenance, softened into feminine beauty. Her talents, her acquirements, her modest opinion of herself, her sound judgment, her active charity, her extreme piety, seemed to mark her as a being who could not long remain in this world of sin: she died of rapid consumption, which disease, though probably, long engendered

* A school resembling those for our civil engineers.

in her constitution, which had already given one or two alarms, and probably made hidden progress, only manifested itself in its decided form six weeks before her death, amid the joyful preparations for her marriage. From this moment a mournful change took place in every arrangement; the broken-hearted mother was long, very long, unable to receive company, never again to mingle in it abroad; and the unceasing and heroic efforts of her surviving daughter, and the affectionate cares of her husband, failed to rouse her. At length, occasional society at his own house became absolutely necessary to M. Cuvier, and the good wife consented to that which the good mother had refused; the saloon remained closed in which she had seen the perfection of mortal loveliness breathe her last, and one of the libraries was opened to company. A few old friends alone took immediate advantage of the permission to resume their visits; these, in time, brought others; but the change had come; and to those who had known Clementine, the soirées were stripped of one of their principal charms. In vain did M. Cuvier exert himself more than ever to welcome his guests; vain was the conversation of his daughter-in-law, the most fascinating and brilliant that perhaps ever fell from the lips of woman; there sat the dejected mother, evidently making an effort over herself, her thoughts but too plainly in another sphere; and the cause of her abstraction was whispered to strangers, with mournful looks and faltering tongues, by those who had beheld the being that had filled up the vacancy. With a violent effort, that closed saloon was once more opened to M. Cuvier's friends; but it seemed to be only the preparation for the dying breath of the parent. That saloon is now always open, and the bereaved widow and her devoted child always inhabit it, surrounded by the portraits of those they loved, clinging to the shadows and recollections of those that are gone, and living in the past, as the sole source of their melancholy enjoyment.

After the death of his own daughter, M. Cuvier became, if possible, more than ever attached to Mademoiselle Duvaucel. He had never made any difference in his conduct towards her and Mademoiselle Cuvier; but the loss of the latter necessarily increased his reliance on her cares, and an anxiety was added to his affection, which manifested itself

on all occasions. If she were ill, ten times in the course of the day would he mount up-stairs to inquire at her bedside how she felt; if she coughed it seemed to give a pang to his very heart; and, on her part, could her redoubled devotion towards him and her mother have filled up the void, their great loss would have been repaired.

In 1830, as we have already seen, M. Cuvier paid his last visit to England, in which journey he was accompanied by Mlle. Duvaucel, who was willingly spared by her mother; for so fondly had these two beings watched over him, that he almost required the one or the other to be constantly with him. This visit happening as it did during the period of the last revolution, caused several reports in this country of their having fled to avoid danger. Hearing these surmises whispered about the hotel where they resided, M. Cuvier's faithful valet ventured to repeat them, and asked his master if he were really ignorant of what was about to take place. "Do you think, Lombard," replied M. Cuvier, mildly, "that if I had been aware of that which was about to happen, I should have left Madame Cuvier?" To those who knew the man, this answer was the best refutation to such suppositions. The fact was, that the opportunities of absenting himself were rare, and feeling the necessity of coming to England for scientific purposes, more especially connected with his great work on fishes; feeling also that a change was required by his constitution, so overcharged with mental labour, a mere apprehension was not likely to deter him from a project which had been delayed in its execution by a concurrence of untoward circumstances. Till M. Arago was elected in the place of Baron Fourrier, M. Cuvier could not quit his Secretaryship of the Academy of Sciences, the duties of which were doubled by the death of the latter; and, further than that, it was requisite for him to read his admirable éloges on Sir Humphry Davy and M. Vauquelin, at the next general meeting of the Institute, and the postponement of that meeting threw another obstacle in the way of his immediate departure. I have already mentioned how deceived he was by the apparent tranquillity of Paris on the morning in which he left it, and how he was induced to proceed even after he had determined to return from Calais.

As I have here spoken of the meeting of the Academies

on the 26th of July, I will stop to correct an error which has obtained much circulation in England. A personal quarrel is said to have taken place on that day, before the meeting, between M. Cuvier and M. Arago, in which the former was, with difficulty, prevented from drawing his sword. The only foundation for this report was, that M. Arago was obliged on this occasion to read an éloge on M. Fresnel, in which he had introduced a very violent paragraph against the Clermont-Tonnerre ministry, which paragraph might easily have been converted into a marked reference to the then existing government. M. Cuvier suggested to M. Arago that it would be more wise and prudent to leave out this part of the éloge, and at such a moment to avoid all causes of excitation. He gave his advice in the most friendly manner; but, as M. Arago defended his paragraph with considerable warmth, M. Cuvier ceased to urge the matter. After this, the two secretaries appeared together before the public assembly, in the Hall of the Institute, and when the ceremony was concluded they dined together at M. Cuvier's house, and passed the evening most amicably in each other's society, without an idea that their mere difference of opinion would cross the Channel in the shape of a dreadful and almost murderous quarrel.

The first intention of the travellers was to proceed by way of Dover; but, to please Mademoiselle Duvaucel, M. Cuvier ascended the river, and landed at the Tower stairs. Often did he congratulate himself, afterwards, on this compliance, which afforded him a view of the banks of the Thames, and the thousands of vessels which float on its surface, and of which no foreigner can possibly form an idea without actual inspection. The object of one of M. Cuvier's first walks, after his arrival in London, was to see all the new caricatures contained in our shop windows; for he was a warm admirer of our performances in this art, and already possessed a voluminous collection of the best which had appeared. They afforded him more than mere amusement, for he considered them as curious documents of the moral and political history of certain periods; and often, in the midst of a serious conversation concerning the events of our own times, or those immediately preceding us, he would cite various circumstances which had been stamped

upon his recollection by the sight of an English caricature. During the fortnight he was in London, he was in incessant motion; but his anxiety respecting public events embittered all his enjoyment. An accidental circumstance delayed one of Madame Cuvier's daily epistles, and he scarcely rested during these hours of expectation. One morning, however, he flew into the room where Mademoiselle Duvaucel was with me, preparing to go out, entered without the slightest ceremony, embraced us both, and exclaimed, "I have heard from my wife;" then, reading the letter, he asked us if we were not as happy as himself; and taking an affectionate leave, as if his heart was quite full, he hastened to an appointment at the British Museum. He made a great many notes, and several drawings, while here, relative to his Fossil Remains and Ichthyology, but contrived a few hours for visiting. The enlightened and amiable Baron Seguier, the Consul-General of France, was then living, and the little party assembled several times at his house, where the events then taking place in their own country were constantly discussed, and where these able men predicted much of that which has since occurred. M. Cuvier went to Richmond also, of which he had so frequently heard in terms of praise: the day was rather stormy, but with intervals of brightness, which added to the effect of the scene; and he observed, that he could not wonder, when he saw such a sky over such a country, at the perfection to which the English had carried their landscapes in water colours. He had intended re-visiting Oxford, and seeing Cambridge, with the latter of which he was only acquainted by report; but the curtailed period of his stay did not permit him to enjoy these pleasures. Never, however, did any one profit more entirely by every hour than he did. Accustomed to consider his insatiable desire to see and know every thing as a virtue, he left no means untried to satisfy his curiosity; he rose at six, visited on foot various parts of London, which he had never before seen, then returning to breakfast, he entered his carriage with his companion, and went to the Parks, the exhibitions, collections, &c. He was every where pleased with the reception he met with, though it was a matter of regret to the English that so few persons chanced to be in the metropolis to do him honour.

One amusing mark of respect was a source of great entertainment, and for its drollery alone do I offer it to the reader. During the absence of his valet, M. Cuvier sent for a barber to shave him. The operation being finished, he offered to pay the requisite sum; but the enlightened operator, who happened to be a Gascon, bowed, and positively refused the money, saying, with his comic accent, "he was too much honoured, by having shaved the greatest man of the age, to accept any recompense." Hardly surpressing a smile, M. Cuvier felt bound to give him the honour to its full extent, and engaged him to perform his function every day while he remained in London. It is scarcely necessary to add, that the barber, in a short time, felt it a still higher duty to consult prudence rather than empty honour, and pocketed the amount due for the exercise of his calling.

Although occasionally subject to sight ailments, the health of M. Cuvier, generally speaking, was good, and his carriage was used by him more as a saving of time than a matter of necessity; therefore the sudden summons he received to quit his earthly labours, was an event for which his friends and his country were not prepared. Never were his intellectual faculties more brilliant; never was his great mind more fully possessed of that clearness, that comprehensiveness, which so peculiarly marked it, than at the time of his seizure. His life of temperance and rectitude, at the age of sixty-two, had preserved the corporeal existence unimpaired, and also contributed to the perfection of his mental vigour; for more than forty years he had been unremittingly labouring to perfect his great views in science and legislature; and concerning the former he was about to give to the world the results of his researches and reflections. "His intention was to review all his works, and put them on a footing with the last discoveries, and then to deduce from them all the consequences, all the general principles, which appeared to him to emanate from such an assemblage of facts, though he did not think it possible, in the present state of human knowledge to establish a general theory. All his studies, all his meditations had convinced him of the philosophical principle, that organized beings exist for an end, for a special object; but he did not admit any scientific theory, and with all his energy maintained

that it was not yet possible for any to be formed."* But even the entire publication of these facts, of these deductions, was denied to us by the inscrutable ways of the Almighty; perhaps we were not yet worthy of penetrating so deeply into the mysteries of creation as had been given to this one gigantic intellect, and I dare not call the death of M. Cuvier premature, when I think that by so doing I should question the decrees of that Providence to whom we owe the very existence of him whom we deplore, by whom that life was lent to us to increase our sense of his wisdom, and to enlighten us by its example.

M. Cuvier had sought forgetfulness of the storms that were passing wtthout the walls of his peaceful abode, in a greater devotion than ever to his home pursuits; that is, he gave up his evening visits, and the few relaxations he had permitted himself to enjoy. The cholera raged around him, and he saw those fall who were younger and apparently stronger than himself; those whom he loved, and those whose services were essential to the state. Public disturbances filled the streets of Paris, while pestilence stalked through the multitude in every direction. Secluding himself, then, entirely from society, except that of his family; after going through the daily routine of his public duties, he returned to his labours, with an intenseness, which, added to his share of the pervading gloom, was calculated to injure the springs of life. No one, however, could foresee its effects on his constitution; and he himself said, that he had never worked with so much real enjoyment;" and he rapidly advanced, not only in the vast undertakings then begun, but in the preparations for others. On Tuesday, the 8th of May, he opened the third and concluding part of his course of lectures, at the Collège de France, on the history of Science, &c., by summing up all that had been previously said. He forcibly inveighed against that heresy in natural history, which derives every thing in this vast universe from one isolated and systematic thought, and shackles the future of science with the fallacious progress of the mo-

* Laurillard.

ment:* he pointed out what remained for him to say respecting the earth and its changes, and announced his intention of unfolding his own manner of viewing the present state of creation; a sublime task, which was to lead us, independent of narrow systems, back to that Supreme Intelligence, which rules, enlightens, and vivifies, which gives to every creature the especial conditions of its existence, to that intelligence, in short, which reveals all, and which all reveals, which contains every thing, and which every thing contains. In the last part of this discourse, there was a calmness, a clearness of perception, an unaffected and unrestrained manifestation of the contemplative and religious observer, which greatly added to its force, and which involuntarily recalled that book which speaks of the creation of the earth and the human race. The similarity was avoided rather than sought; it was not to be found in the words, but the ideas; and at once flashed across the minds of his auditors, when the great professor declared, that each being contains in itself an infinite variety, an admirable arrangement for the purposes for which it is intended; that each being is good, perfect, and capable of life, each according to its order and species, and in its individuality. In the whole of this lecture there was an omnipresence of the Omnipotent and Supreme Cause; the examination of the visible world seemed to touch upon the invisible; the search into creation, necessarily invoked the presence of the Creator; it seemed as if the veil were to be torn from before us, and science was about to reveal eternal wisdom. Great then, was the effect produced by the concluding sentences, which seemed to bear a prophetic sense, and which were the last he ever addressed to his audience. "These," said he, "will be the objects of our future investigations, if time, health, and strength, are given to me, to continue and to finish them with you." Those who were versed in human destiny, seemed to feel that his sphere of action was even then placed out of this world, and that he had pronounced his farewell. So near

* Alluding to the theory of unity of composition. This and the following citations are taken from a description of this admirable lecture, as noted by a distinguished auditor, the Baron de H——.

the great and awful tribunal, what other words, what other thoughts than those contained in this lecture, could have so plainly shown the preparation already made for his journey thither?

I am told that the profound emotion occasioned by this last discourse was universal, and that few left the hall without an undefined feeling of sadness, and sentiments of reverence, far beyond the power of expression. On the same day, M. Cuvier, as usual, attended a council of administration in the Jardin des Plantes, and bestowed his last cares on that immense establishment, which owes so large a portion of its treasures to his constant and active solicitude, and to his extreme generosity. "By turns protected and protecting, M. Cuvier had there resisted the political vicissitudes which changed all but the sacred asylum of men and things. It would seem as if a special grace from Providence had suffered him to remain, during thirty-eight years of revolution, in the same place and with the same occupations. The great mind, the pure intention, the devoted and disinterested heart, alone are suffered to effect such miracles."

In the evening of Tuesday, M. Cuvier felt some pain and numbness in his right arm, which was supposed to proceed from rheumatism. On Wednesday, the 9th, he presided over the Committee of the Interior with his wonted activity. At dinner that day, he felt some difficulty in swallowing, and the numbness of his arm increased. Never can the look and the inquiry he directed to his nephew, when he found that bread would not pass down his throat, be forgotten; nor the self-possession with which he said, as he sent his plate to Madame Cuvier, "Then I must eat more soup," in order to quiet the alarm visible on the countenances of those present. M. Frédéric, the younger, sought medical advice; and an application of leeches was made during the night, without producing any melioration. The next day (Thursday) both arms were seized, and the paralysis of the pharynx was complete. He was then bled, but without any benefit, and from that moment he seemed to be perfectly aware of what was to follow. He, with the most perfect calmness, ordered his will to be made; and in it evinced the tenderest solicitude

for those whose cares and affection had embellished his life, and for those who had most aided him in his scientific labours. He could not sign it himself, but four witnesses attested the deed. He sent for that good M. Royer, who was so soon to follow him, to make a statement of the sums he had expended, out of his private fortune, on the alterations of the rooms behind his house, though the affliction of this Chef du Bureau d'Administration was so heavy as almost to disable him from doing his duty. M. Cuvier alone was tranquil; and, perfectly convinced that all human resource was vain, he yet, for the sake of the beloved objects who encircled him, submitted without impatience to every remedy that was suggested. The malady augmented during the night, and the most celebrated medical practitioners were called in: emetics were administered by means of a tube, but, like all other endeavours, they did not cause the least alteration. Friday was passed in various, but hopeless, attempts to mitigate the evil; and, perhaps, they only increased the suffering of the patient. In the evening the paralysis attacked the legs; the night was restless and painful; the speech became affected, though it was perfectly to be understood. He pointed out the seat of his disorder, observing to those who could comprehend him, "Ce sont les nerfs de la volanté qui sont malades;"* alluding to the late beautiful discoveries of Sir Charles Bell and Scarpa, on the double system of spinal nerves:† he clearly and precisely indicated the changes of position which the parts of the limbs yet unparalyzed rendered desirable; and he was moved from his own simple and comparatively small bed-room, into that saloon where he had been the life and soul of the learned world; and, though his speech was less fluent, he conversed with his physicians, his family, and the friends who aided them in their agonizing cares. Among other anxious inquirers came M. Pasquier, whom he had seen on the memorable Tuesday; and he said to him, "Behold a very different person to the man of Tuesday—of Saturday. Nevertheless, I

* "The nerves of the will are sick."

† A month before his illness, he had read a paper at the Institute upon a memoir of Scarpa's, on this distinction between the nerves of will, and those of sensibility.

had great things still to do. All was ready in my head; after thirty years of labour and research; there remained but to write; and now the hands fail, and carry with them the head." M. Pasquier, almost too much distressed to speak, attempted to express the interest universally felt for him; to which M. Cuvier replied, "I like to think so; I have long laboured to render myself worthy of it." In the evening, fever showed itself and continued all night, which produced great restlessness and desire for change of posture; the bronchiæ then became affected, and it was feared that the lungs would soon follow. On Sunday morning the fever disappeared for a short time; consequently he slept; but said, on waking, that his dreams had been incoherent and agitated, and that he felt his head would soon be disordered. At two o'clock in the day, the accelerated respiration proved that only a part of the lungs was in action; and the physicians, willing to try every thing, proposed to cauterize the vertebræ of the neck: the question, Had he right to die? rendered him obedient to their wishes; but he was spared this bodily torture, and leeches and cupping were all to which they had recourse. During the application of the former, M. Cuvier observed with the greatest simplicity, that it was he who had discovered that leeches possess red blood, alluding to one of his Memoirs, written in Normandy. "The consummate master spoke of science for the last time, by recalling one of the first steps of the young naturalist." He had predicted that the last cupping would hasten his departure; and when raised from the posture necessary for this operation, he asked for a glass of lemonade, with which to moisten his mouth. After this attempt at refreshment, he gave the rest to his daughter-in-law to drink, saying, it was very delightful to see those he loved still able to swallow. His respiration became more and more rapid; he raised his head, and then letting it fall, as if in meditation, he resigned his great soul to its Creator without a struggle.

Those who entered afterwards, would have thought that the beautiful old man, seated in the arm-chair, by the fire-place, was asleep; and would have walked softly across the room for fear of disturbing him; so little did that calm and noble countenance, that peaceful and benevolent

mouth, indicate that death had laid his icy hand upon them, but they had only to turn to the despairing looks, the heart-rending grief, or the mute anguish of those around, to be convinced that all human efforts are unavailing, when Heaven recalls its own.*

The perfect disinterestedness of M. Cuvier's character, the remarkable liberality of his disposition, the sums he so delightedly bestowed on science, in a dearth of other proofs, would all be established by the moderate fortune he left to his family. After having filled such high offices in the state; after having executed, under the magnificent government of the empire, missions which a man thirsting after wealth would have turned to his pecuniary advantage; all the fortune he amassed amounted but to four thousand pounds sterling; his library had cost him a similar sum;†

* Germany lost her great Goëthe in this year. France, besides the above calamitous privation, was bereaved of Champollion, Casimir Perrier, and Abel Remusat; and Great Britain, of Sir Walter Scott and Sir John Leslie: the preceding year had been *her* greatest trial; for in it she was deprived of Sir Humphry Davy, Dr. Young, and Dr. Wollaston, &c.

† To the books purchased by himself were added those published at the expense of the Government, copies of which were always presented to him; and the numerous gifts he received from authors of all countries, who were universally anxious to pay him this mark of respect, even if their works did not treat of Natural History. Altogether amounted to more than nineteen thousand volumes, besides pamphlets, atlasses, &c., and many of which contained his own notes. It was very desirable that this library should remain entire, for the use of students; and such being Madame Cuvier's wish, the legatees, consisting of M. F. Cuvier, his son, M. Valenciennes, and M. Laurillard, accepted the value of their portions as mere books, and the Government agreed to purchase the whole. The sum was voted at the same time as Madame Cuvier's pension; and much is it to be regretted that the value of books has of late years so much diminished in France: however it is much more vexatious, that no building can be found to contain this collection, where it might be consulted in its entire state by the public; and it is therefore to be divided between the Schools of Law and Medicine, the Normal School, and the Jardin des Plantes, where many volumes will enter as duplicates. The apartments in which these treasures were contained, were a continuation of M. Cuvier's own dwelling, and had been originally used for the forage of the menagerie. On this being removed to the building called the Rotonde, Baron Cuvier asked permission of the Board of Administration of the Jardin, to take these granaries into his own hands, and convert them, at his own expense, into a suite of rooms. This cost him 1640*l.*, which gave him a right to ask for a dwelling for his family after his death; a right which was graciously confirmed by his present Majesty. In these rooms the great savant carried on his vast labours and meditations, working in each according to the subject on

nd he never hesitated procuring any object of natural history at his own expense, original cost and freight included, rom every quarter of the globe; not for himself, but to present it to the Museum: and if to these be added his hospitality, and his generous assistance to others, the small mount of the property he left behind him may be easily ccounted for. He desired to be buried without ceremony, n the cemetery of Père la Chaise, under the tombstone which covered his daughter; but it was not possible for such a man to die without much public manifestation of respect at the last sad ceremony. The funeral procession was followed by a deputation from the Council of State, presided by the Keeper of the Seals; also from the Academies of Sciences, of Inscriptions, of Medicine, of France; by members of the two Chambers, the Ecole Polytechnique, &c. The earthly remains were alternately borne by pupils from the laboratories of the Jardin des Plantes, from the Schools d'Urfort, of Law, and of Medicine, and first taken to the Protestant Church in the Rue des Billettes. The pall was supported by M. Pasquier, president of the Chamber of Peers; M. Devaux, counsellor of state; M. Arago, secretary of the Academy of Natural Sciences; and M. Villemain, vice-president of the Royal Council of Public Instruction. Different members of the learned and legislative bodies, each pronounced a funeral discourse over the grave, according to the usual custom of the country. A monumental statue is to be erected in the Jardin des Plantes, another at Montbéliard, the size and materials of which depend on the amount of the subscriptions. The King has also ordered a marble bust, by M. Pradhier, to be placed in the Institute; and another to be placed in the Galleries of Anatomy, by M. David. M. Cuvier is succeeded by Baron Dupin (the elder) at the Académie Française, and by Dr. Dulong* at the Académie des Sciences. M. de Blainville is appointed professor of comparative anatomy at the Jardin des Plantes.

which he was employed: they made his house appear large; but, in reality, the habitable part of it was scarcely of sufficient extent for his comfort, when it is considered how many visitors he was there obliged, by his places, to entertain.

* Since writing the above, M. Dulong has resigned his secretaryship, on account of his health.

Many of his places remained unfilled, as if those, wh would otherwise be candidates, were afraid of the conte This one man held them all; rigidly performed all the duties; carried his benevolent and enlightened princip with him into all his employments; scorned no det which could bear upon their improvement; saw, in o glance, the influence which their progress would have ov society at large; and yet, while his mind was filled wit these great and general views, never, for one instant forgo that which belonged to his character as a father, a husban a brother, and a friend; or that he had fellow-creatures wh needed his assistance. His public employments are no separated; and the occupiers may think themselves happ if they can, in their solitary succession, in some degree a tain the perfection which stamped his combined career. The death of such a man, at such a period of his labours, and at such a moment, scarcely seems to come within the common routine of mortality, but to have been the result o a special and chastening mandate from Heaven.

CHRONOLOGICAL LISTS.

CHRONOLOGICAL LIST

OF

THE PRINCIPAL EVENTS

OF

THE BARON CUVIER'S LIFE.

A. D.

1769. (*August* 23.) Born.

1779. Entered the Gymnase of Montbéliard.

1784. (*May* 4.) Entered the Académie Caroline, in the University of Stuttgardt.

1788. Left Stuttgardt to return to Montbéliard.
Entered as tutor into the family of Count d'Hericy, in Normandy.

1793. Death of M. Cuvier's mother.

1795. (*Spring*.) Came to Paris.
Appointed Membre de la Commission des Arts.
Appointed Professor at the Central School of the Panthéon.
(*July*.) Made assistant to M. Mertrud, and entered the Jardin des Plantes; sent for his father and brother; commenced the Gallerie d'Anatomie comparée.
(*December*.) Opened his first course of lectures, at the the Jardin des Plantes, on Comparative Anatomy.

1796. Made a Member of the National Institute.

CHRONOLOGICAL LIST

OF

THE PUBLISHED WORKS

OF

THE BARON CUVIER.

A. D.

1792. Mémoire sur l'Anatomie de la Patelle.

1795. Mémoire sur le Larynx inférieur des Oiseaux. (Magasin Encyclopédique.)

Mémoire sur l'Anatomie du grand Limaçon. (Helix Pomatia *Lin.*)

Notice ou Mémoire sur la Circulation dans les Animaux à sang blanc.

Mémoire sur une nouvelle Division des Mammifères. (Magasin Encyclopédique.)

Mémoire sur une nouvelle Distribution, en six Classes, des Animaux à sang blanc.

Mémoire sur la Structure des Mollusques, et de leur Division en Ordres.

1796. Mémoire sur le Squelette d'une très grande Espèce de Quadrupède inconnue (Megalonix.)

Mémoire sur les Têtes d'Ours Fossiles, des Cavernes de Gailenreuth.

Mémoire sur un Squelette Fossile (Megatherium) trouvé sur les Bords du Rio de la Plata.

Mémoire sur l'Organe de l'Ouïe dans les Cetacés.

Mémoire sur un nouveau Genre de Mollusque (Phyllidia.)

A. D.

1798. Proposal made to M. Cuvier, by Count Berthollet, to accompany the expedition to Egypt; which offer was refused.

1800. Appointed Professor at the Collège de France, on which M. Cuvier resigned the chair at the Central School of the Panthéon.

Elected Secretary to the Class of Physical and Mathematical Sciences of the Institute.

A. D.

1797. Mémoire sur l'Animal des Lingules.
Note sur l'Anatomie des Ascidies.
Note sur les différentes Espèces de Rhinoceros.
Note sur les Narines des Cetacés.
Note sur les Rates du Marsouin.
Note sur une nouvelle Espèce de Guêpe Cartonnière.
Elogé Historique de Riche.
Mémoire sur la manière dont se fait la Nutrition dans les Insectes.

1798. Tableau Elémentaire de l'Histoire Naturelle des Animaux.
Mémoire sur les Organes de la Voix dans les Oiseaux.
Mémoire sur les Ossemens Fossiles des Quadrupèdes. Ici sont indiqués l'Elephant, le Mastodonte d'Amerique et d'Europe, l'Hippopotame, l'Rhinoceros à crane allongé, le Tapir gigantesque, le Megatherium, l'Ours des Cavernes, un Animal carnassier de Montmartre (reconnu plus tard pour être un Pachyderma,) l'Animal de Monti, que M. Cuvier croyait un Mastodonte, l'Elan d'Islande, qu'il croyait alors, sur les rapports de Faujas, exister à Maestricht, deux Espèces de Bœufs de Sibérie, deux Cerfs des Tourbières de la Somme.
Mémoire sur les Vaisseaux sanguins des Sangsues, et sur la couleur rouge du Fluide qu'y est contenu. (Celle-ci est la découverte sur laquelle repose l'établissement de la classe des Vers à sang rouge.)
Mémoire sur les Ossemens qui se trouvent dans les Gypses de Montmartre. (Ici M. Cuvier rectifie son Mémoire précédent, et annonce avoir reconnu trois espèces distinctes de Pachydermes.)

1799. Notice Biographique sur Bruguières.
Mémoire sur les Différences des Cerveaux, considerés dans tous les Animaux à Sang rouge.
Mémoire sur l'Organisation de quelques Meduses) Rhyzostome bleu.)

1800. Mémoire sur les Tapirs Fossiles de France.
Mémoire sur le Siren Lacertina.
Mémoire sur un nouveau Genre des Quadrupèdes édentés, nommés Ornithorynchus paradoxus, décrit par Blumenbach (extrait par M. Cuvier.)
Mémoire sur l'Ibis des anciens Egyptiens.
Mémoire sur les Ornitholithes de Montmartre.
Addition à l'Article des Quadrupèdes Fossiles, où est indiqué l'Anoplotherium, et une Espèce du même Genre, de la taille d'un Hérrisson.
Mémoire sur une nouvelle Espèce de Quadrupède Fossile, du Genre de l'Hippopotame.
Tomes I. et II. des Leçons de l'Anatomie comparée.
Eloge Historique de Daubenton.

A. D.

1802. Named one of the six Inspector-Generals of Education (Etudes.)
Went to Marseilles, &c. to found the Royal Colleges.

1803. Made perpetual Secretary to the Class of Physical and Mathematical Sciences of the Institute.
Resigned Inspector-generalship of Education.
Married to Madame Duvaucel.

A. D.

Eloge Historique de Lemonnier.

1801. Mémoire sur une nouvelle Espèce de Crocodile Fossile, des Environs de Honfleur.

Note sur des nouvelles découvertes d'Os Fossiles. (Il s'agit des Crocodiles de Honfleur, d'Altorf en Franconie, de Provins, Département de l'Orme.) Ici M. Cuvier annonce le découverte d'un septième animal dans le gypse de Montmartre, un Carnassier (Canis.)

Mémoire sur les Dents des Poissons.

Eloge Historique de l'Héritier.

Eloge Historique de Gilbert.

1802. M. Cuvier commença les Analyses des Travaux de l'Institut, qui étaient continués jusqu'à sa mort.

Mémoire sur l'Animal de Lingule, l'Animal de Bullæa aperta, et celui de Clio Borealis.

Mémoire sur le Genre Tritonia, avec la Description d'une Espèce nouvelle.

Eloge Historique de Jean Darcet.

Extrait d'un Mémoire sur les Vers qui ont le sang rouge. Ici M. Cuvier annonce, que la plupart des Vers marins ont le sang rouge, ainsi que les Lombrics; et donne la description du système circulatoire dans l'Arénicole, ou Lombric Marin.

Extrait de la Description de l'Anatomie de l'Ornithorynchus p. par Home.

Mémoire sur les Serpules.

Articles Abdomen, Absorption, Accouplement, Acéphales, Actinie, pour la Dictionnaire des Sciences Naturelles.

1803. Mémoire sur le Genre Aplysia.

Mémoire sur les Ecrevisses connues des Anciens, &c.

Notice sur l'Etablissement de la Collection d'Anatomie comparée du Museum.

Description Ostéologique du Rhinoceros Unicorne.

Description Ostéologique du Tapir.

Description Ostéologique du Daman.

Mémoire sur les Espèces des Animaux dont proviennent les Os Fossiles répandus dans la Pierre à Plâtre des Environs de Paris.

Premier Mémoire—Restitution de la Tête.

Second Mémoire—Examen des Dents.

Troisième Mémoire—Restitution des Pieds.

Mémoire sur les Os Fossiles des Environs de Paris.

Article Historique sur les Collections de l'Histoire Naturelle.

Note sur l'Anatomie de quelques Aplysies, observés pendant un séjour à Marseille.

Mémoire sur la Pennatula Cynomorium, et sur les Coraux en general, ——. montre que la Pennatula Cyn. est composée des plusieurs Animaux, avec une seule volonté, ce

A. D.

1804. Eldest son born and died.

A. D.

qu'on déduit de leurs mouvemens, qu'il a unité de nutrition, et qu'on peut la regarder comme un seul animal à plusieurs bouches. M. Cuvier étend la même conclusion aux Zoophytes fixés, quoiqu'ils différent essentiellement par l'absence du mouvement.

1804. Article Bec, pour la Dictionnaire des Sciences Naturelles.

Recherches d'Anatomie comparée sur les Dents.

Notice sur un Squelette Fossile, trouvé à Pantin, dans le Gypse (Paleotherium minus.)

Mémoire sur l'Hyale, sur un nouveau Genre des Mollusques nus, intermédiaire entre l'Hyale et le Clio, et l'établissement d'un nouvel Ordre dans la Classe des Mollusques.

Mémoire sur l'Hippopotame et son Ostéologie.

Mémoire sur les Thalides, et sur les Biphores.

Mémoire sur le Genre Doris.

1805. Articles Bœuf, Bois, Branchie, pour la Dictionnaire des Sciences Naturelles.

Trois derniers Volumes des Leçons de l'Anatomie comparée.

Eloge Historique de Priestley.

Mémoire sur les Animaux auxquels appartenaient les Pierres dites Nummulaires, ou Lenticulaires, et sur ceux du Corne d'Ammon. (M. Cuvier attribue les Nummulaires concentriques à des osselets intérieurs d'un Zoophyte, voisin des Porpites.

Extraites des Mémoires sur le Clio Borealis, l'Hyale, le Pneumoderme.

Suite des Mémoires sur les Tritonia, Doris, Aplysia, Onchidium, Bullæa.

Suite des Mémoires précédents.

Suite des Mémoires sur la Phyllidia et le Pleurobranchus.

1806. Eloge Historique de Cels.

Mémoire sur les Os Fossiles trouvés en divers endroits de la France, et plus ou moins semblables à ceux du Paleotherium.

Mémoire sur la Scyllée, l'Eolide, et le Glaucus, avec des Additions au Mémoire sur la Tritonia.

Mémoire sur l'Onchidium Peronii.

Additions à l'Article sur les Ossemens Fossiles des Tapirs.

Additions à l'Article sur l'Hippopotame.

Mémoire sur les Ossemens Fossiles d'Hippopotame.

Mémoire sur la Phyllidie et sur le Pleurobranche.

Mémoire sur le Sarigue Fossile des Gypses de Paris.

Mémoire sur le Megalonyx.

Mémoire sur le Megatherium.

Mémoire sur la Dolabelle.

Mémoire sur les Rhinoceros Fossiles.

A. D.

1808. Appointed Counsellor to the University.

A. D.

1806. Mémoire sur le Limaçon et le Colimaçon.

Mémoire sur les Ours des Cavernes d'Allemagne.

1807. Eloge Historique de Michel Adanson.

Mémoire sur les Elephans vivans et Fossiles.

Mémoire sur le Grand Mastondonte.

Mémoire sur les autres Espèces de Mastondonte.

Résumé général de l'Histoire des Ossemens Fossiles, de Pachydermes, des Terreins Meubles et d'Alluvion.

Mémoire sur les Ossemens Fossiles des Environs de Paris. Les Phalanges.

Mémoire sur les Os des Extrémités.

Mémoire sur les Os longs des Extrémités.

Mémoire sur les Extrémités antérieures.

Mémoire sur les Omoplates et les Bassins.

Description de deux Squelettes presque entiers de l'Anoplotherium commun.

Mémoire sur les Ornitholithes de la Pierre à Plâtre de Paris.

Mémoire sur les Carnassiers (autres que l'Ours) des Cavernes.

Mémoire sur les différentes Espèces de Crocodiles vivans.

Mémoire sur quelques Ossemens de Carnassiers dans les Carrières à Plâtre de Paris.

Rapport à la Classe des Sciences Physiques et Mathématiques de l'Institut, sur l'Ecrit de M. Adams sur l'Elephant Fossile.

Rapport sur un Mémoire de M. Decandolie, intitulé "Tableau de la Nutrition de Végétaux."

Rapport sur un ouvrage manuscrit de M. André, ci-devant connu sous le Nom de Père Chrysologue de Gy, lequel ouvrage (sur la Géologie) est intitulé "Théorie de la Surface actuelle de la Terre."

1808. Rapport Historique sur les Progrès des Sciences Naturelles, depuis 1789, &c.

Eloge Historique de Broussonnet.

Mémoire sur l'Ianthine et la Phasianelle.

Mémoire sur l'Helix vivipara.

Rapport sur un Mémoire de MM. Gall et Spurzheim.

Mémoire sur le Buccinum undatum.

Essai sur la Géographie Minéralogique des Environs de Paris, (avec M. Brongniart.)

Observations sur les Ossemens Fossiles des Crocodiles, sur ceux des Environs de Honfleur, du Havre, et de Thuringie.

Observations sur le grand Animal Fossile de Maestricht.

Mémoire sur le Genre Thétys.

Suite des Recherches sur les Ossemens Fossiles des Environs de Paris.

Mémoire sur les Os des Ruminans des Terreins Meubles.

A. D.
1809. } Charged with the organization of the Academies of the
1810. } Italian States.

1811. Charged with the organization of the Academies of Holland.
Received the title of Chevalier.

1812. Death of Mademoiselle Anne Cuvier.

1813. Death of George Cuvier, jun.
M. Cuvier sent to Rome, to organize the University there.
Named Maître des Requêtes.
Ordered to make a list of books for the King of Rome, with an intention that M. Cuvier should superintend his education.
Made Commissaire Impériale Extraordinaire, and sent to the left bank of the Rhine, in order to take the steps necessary for opposing the invasion of France.

1814. Named Counsellor of State by Napoleon.
Named Counsellor of State by Louis XVIII.
(*September.*) First officiated as Commissaire du Roi, to which he was repeatedly called at various periods of his life.
Named Chancellor of the University.
1815. Procured meliorations of the Criminal Laws, and in the Prévôtal Courts.

A. D.

1809. Mémoire sur les Brèches Osseuses de Gibraltar.
Mémoire sur l'Ostéologie du Lamantin et du Dugong.
Mémoire sur quelques Quadrupèdes Fossiles des Schistes Calcaires.
Mémoire sur les Ossemens Fossiles des Chevaux et des Sangliers.
Supplément au Mémoire sur les Ornitholithes de Paris.
Mémoire sur les Rongeurs Fossiles des Tourbières, et sur quelques autres Rongeurs, renfermés dans les Schistes.
Mémoire sur les Espèces vivantes des grands Chats.
Rapport sur le Mémoire de Delaroche, sur la Vessie Aërienne des Poissons.
Mémoire sur les Ossemens Fossiles des Tortues.

1810. Mémoire sur les Acères.
Mémoire sur les Reptiles et les Poissons des Gypses de Paris.
Eloges Historiques de Bonnet et de De Saussure.

1811. Recherches sur les Ossemens Fossiles, (grand ouvrage en quatre volumes in 4to.)
Eloge Historique de Fourcroy.
Rapport sur un Mémoire de M. Jacobson, intitulé "Description Anatomique des Organes observés dans les Mammifères."

1812. Article Animal, pour la Dictionnaire des Sciences Médicales.
Eloge Historique de Dessesserts.
Eloge Historique de Cavendish.

1813. Articles Asygos, Caverneux, pour la Dictionnaire des Sciences Naturelles.
Rapport sur des Cetacés echoués sur les Côtes de France, le 7 Janvier, 1812.
Mémoire sur un nouveau Rapprochement à établir entre les Classes qui composent le Règne Animal.
Mémoire sur la Composition de la Tête Osseuse dans les Animaux Vertebrés.
Eloge Historique de Pallas.
Mémoire sur le Lophotès Giorna.
Article Dent, pour la Dictionnaire des Sciences Médicales.

1815. Eloges Historiques de Parmentier, et du Comte de Rumford.
Mémoire sur l'Aigle au Maigre.
Mémoire sur la Composition de la Machoire inférieure des Poissons.

A. D.

1818. Offered the Ministry of the Interior; which offer was r
fused.
First Journey to England.
Elected Member of the Académie Française.

1819. (*September* 13.) Named temporary Grand Master to t
University.
Appointed President of the Comité de l'Intérieur.
Created a Baron.

1820. (*December* 21.) Resigned Grand Mastership.

1821. (*July* 31.) Appointed temporary Grand Master to
University.

1822. (*June* 1.) Resigned Grand Mastership.
Made Grand Master of the Faculties of Protest
Theology.

L. D.

1815. Observations et Recherches Critiques sur les Poissons de la Mediterranée.
Suite du même.
Suite du même.
Suite du même.
Mémoire sur les Ascidies.
Mémoire sur les Anatifes et Balanes.
Rapport sur deux Mémoires de M. Savigny, intitulés "Observations sur les Alcyons," (à la suite des Mémoires sur les Animaux sans Vertèbres de Savigny, 2me partie, page 67.)

1816. Réflexions sur la Marche actuelle des Sciences, &c.
Eloge Historique d'Olivier.

1817. Eloge Historique de Tenon.
Articles Cartilage, Cerveau, pour la Dictionnaire des Sciences Naturelles.
Seconde Edition des Recherches sur les Ossemens Fossiles, en cinq volumes in 4to.
Le Règne Animal, en quatre volumes in 8vo.
Rapport sur un Mémoire de M. Dutrochet, intitulé "Recherches sur les Enveloppes du Fœtus."
Mémoire sur les Œufs des Quadrupèdes.
Mémoire sur la Venus Hottentote.

1818. Article Hymen, pour la Dictionnaire des Sciences Médicales.
Eloge Historique de Werner.
Eloge Historique de Desmarets.
Mémoire sur le Genre Chironectes.
Mémoire sur les Diodons.
Mémoire sur le Genre Myletus.
Discours sur la Réception de M. Cuvier à l'Académie Française.

1819. Mémoire sur les Poissons du Genre Hydrocyn.

1820. Eloge Historique de M. de Beauvois.
Mémoire sur le Meleagris Ocellata.

1821. Rapport sur une Mémoire de M. Audouin, intitulé, "Recherches Anatomiques sur le Thorax des Animaux Articulés, et celui des Insectes en particulier." (Annales des Sciences Physiques de Bruxelles, vii. Journal de Physiologie Expérimentale, i.)
Eloge Historique de Sir Joseph Banks.

1822. Rapport sur un Mémoire de M. Flourens, sur le Système Nerveux.
Eloge Historique de M. Duhamel.
Discours Funèbre de M. Vanspaendonck.
Discours Funèbre de M. Délambre.

A. D.

1824. Officiated as one of the Presidents of the Council of State, at the Coronation of Charles X.

Made Grand Officier de la Légion d'Honneur.

Made Commander of the Order of the Crown, by the King of Würtemburg.

1827. (*June* 14.) Appointed Censor of the Press; which appointment was instantly refused.

Charged with the government of all the non-Catholic religions.

1828. (*September* 28.) Death of Mademoiselle Clementine Cuvier.

1830. Resumed lectures at the Collége de France.

Paid a second visit to England.

1832. Created a Peer.

(*May.*) Appointed President to the entire Council of State.

(*May* 13.) Death.

A. D.

1823. Eloge Historique de Haüy.

1824. Mémoire sur une altération singulière de quelques Têtes Humaines.

Mémoire sur le Bradypus tridactylus.

Rapport sur l'Etat de l'Histoire Naturelle, et sur ses accroissemens.

Eloge Historique du Comte Berthollet.

Eloge Historique de Richard.

1825. Article Nature, pour la Dictionnaire des Sciences Naturelles.

Seconde Edition du Discours Préliminaire des Recherches sur les Ossemens Fossiles, appellé "Discours sur les Révolutions de la Surface du Globe," in 8vo.

Discours sur la Distribution des Prix de Vertu.

Eloge Historique de Thouin.

1826. Eloge Historique du Comte de Lacépéde.

Rapport sur les Principaux Changemens éprouvés par les Theories Chimiques.

Edition in 4to. du "Discours sur les Révolutions du Globe."

1827. Eloges Historiques de MM. Hallé, Corvisart, et Pinel.

Eloge Historique de M. Fabbroni.

Mémoire sur le Canard Pie de la Nouvelle Hollande.

1828. Volumes I. et II. du grand Ouvrage sur l'Ichthyologie.

Eloge Historique de Ramond.

Caii Plinii Secundi, Libri de Animalibus.——— Notas et Excursus Zoologici Argumenti adjecit, G. Cuvier, (traduits en 1831.)

Rapport fait à l'Institut sur un Mémoire de M. Adolphe Brongniart, intitulé "Considérations générales de la Nature de la Végétation qui couvrait la Surface de la Terre, aux divers périodes de la formation de son Ecorce."

1829. Seconde Edition du Règne Animal, en 5 tom. in 8vo.

Volumes III. et IV. sur l'Ichthyologie.

Eloge Historique de M. Bosc.

1830. Volumes V. et VI. sur l'Ichthyologie.

Eloge Historique de Sir Humphry Davy.

Eloge Historique de Vauquelin.

1831. Volumes VII. et VIII. sur l'Ichthyologie.

1832. Eloge Historique de Lamarck.

Et en outre plusieurs Rapports sur les Collections rapportés par les Voyageurs, tels que les Collections de MM. Quoy et Gaimard, Lesson et Garrot, Dussumier, &c. &c.